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Per.  
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V.15 #2  
1913

A hearing child's first words and broken sentences are rightly hailed with delight, and every encouragement given to incite to further effort.

Shall we not be equally responsive to the attempts of the little (deaf) ones whose dependence for the perfection of speech is almost entirely upon our faithful, untiring, loving watchfulness?

SARAH FULLER,

THE VOLTA REVIEW, April, 1913.

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The adoption of earlier education for deaf children will become more general, and in doing so it will not only improve the infants affected, but its lessons will be of advantage to the deaf at any age. The movement, conceived in scientific truth, is destined to illumine all the educational highways and byways that must be traversed by the deaf child from infancy to adolescence, and its final justification will be apparent in the improved intelligence, the increased degree of "normality", and in a more intimate relationship with the great hearing and speaking world in the adult.

A. J. STORY,

THE VOLTA REVIEW, April, 1913.



Eighteenth Century—Sir Joshua Reynolds with his car-trumpet



Twentieth Century—Lip-readers employing their "Subtile Art"

THE DEAF IN SOCIETY

# THE VOLTA REVIEW

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## THE HOME SCHOOL FOR LITTLE DEAF CHILDREN, KENSINGTON, MARYLAND

BY ANNA C. REINHARDT, PRINCIPAL

IN THE town of Kensington, Md., nine miles from the city of Washington, is a little school which is being conducted much as a refined home, with the exception of regular school hours in the home. There are in this little school ten children who cannot hear; the youngest is four and the oldest ten years of age. These little ones are so happy that their faces are a constant inspiration to the teachers who live their lives with them.

They came from time to time within the past four years (for the school is only four years old), without speech and, in consequence, without being able to understand what was expected of them.

Aleck, who is now seven, and an incessant chatterbox, was the first baby. He was a little more than three years old when he entered. The grandmother, who brought him from his home in Canada and who left him with tears in her eyes, must have been surprised when the first letter reached her saying he had not had a single homesick moment.

With Kenneth matters were a little more difficult. His parents had come to Washington to live, that they might be near him. Realizing this, he was in a constant state of expectancy, and, during those first days, with the twilight hour came Kenneth's tears.

Milford, who was older than either of these, was soon busy and happy exploring his new surroundings. The fair-haired Barbara, who, like Aleck, was also less than three years old, was a bundle of live

wires and, though happy all day, her nights were troublesome. This was so in her own home, which was not strange, since the illness that left her without hearing was not long past.

### CLASS-ROOM METHODS

With these four precious ones the first class was begun, and the joy of it all can never be told. Such happiness, whenever a new word was mastered and when short sentences began to be understood!

In the class-room were dolls, balls, colored blocks, ten-pins, and all sorts of things to interest and amuse. During a game of ball the teacher was constantly repeating to one child or another and sometimes to them all, "Ball," "Ball," "Ball"; when they were familiar with this word, she began saying, "Roll the ball," "Throw the ball," "Catch the ball." When they were learning that they had eyes, a nose, a mouth, ears, etc., a doll was frequently used as an object, and the teacher would say, "Show me your eyes," "Show me the doll's eyes," and so on down the list.

Later the verbs—run, jump, skip, walk, and so on—were taught, the teacher always suiting the action to the word. Soon the little ones learned to imitate; nor was the doll excused from these exercises. It was taken in turn by each child and taught to obey the commands.

When the counting lessons began, everything in and around the school-rooms had to be counted—books, vases, pic-





ANIMAL PICTURES AFTER A VISIT TO THE ZOO



STORY TIME

tures, people and so on. The child who counted fairly well to five was given five blocks with which to build a train, a tower, or what-not.

These were happy days, and any sort of homesickness was a thing of the past; Barbara's nightmares had vanished and Kenneth's tears came only when things were not managed exactly his way.

Bread, butter, milk, meat, and the names of all things used at the table were taught at meals, and soon the time came when the children began to ask in sentences for what they wanted, and to say, "No, thank you," or "Yes, thank you," when anything was offered.

The ten children are in the hands of three teachers. At meals they discuss the events of the day—which child received mail, what news the letters contained, who went to town, what for, what he saw, and what time he returned.

#### HOLIDAY CELEBRATIONS

Sometimes plans are being hatched for somebody's birthday, and every one has a secret and "will not tell." When the birthday arrives there is always a "boopiful" cake (as one girlie insists upon call-

ing it), with just the right number of candles, and many things from home, together with the surprises from the children. The hero or heroine of the occasion, with a teacher's help, carries the cake from place to place, till each child has had a blow; when the candles are all out they are relighted, that no child may be omitted, for some of the children are "very strong" and blow out many candles at once.

All high days and holidays are observed in their turn. On Hallowe'en the children are so attractive in their various costumes that were they permitted the dissipation of a street pageant, they would surely draw a crowd. On Thanksgiving, this year, there was a gathering of Pilgrims, with Indians as their guests. Christmas, which is the day of all days to all children, is here no less joyous than with you. On Christmas eve each stocking is "hung by the chimney with care," and before daylight the next morning "Merry Christmas" peals forth from the nurseries. After breakfast there is a tree to be seen in each class-room, and a real Santa passes the stockings to their respective owners. There are many pack-



"GUESSING"



LEARNING THE NAMES OF THE ANIMALS





BUILDING A TOWER

ages to be opened, toys to be mended, and dollies to be rocked to sleep.

Is there anything quite so charming as a table surrounded by the happy faces of children. Our Christmas feast, which is usually shared by some friends or relatives of the children, is a never-to-be-forgotten event. The teachers' reward comes with the tired but loving embrace at bedtime, when nothing is left to be desired but sleep.

#### OUT-DOOR DIVERSIONS

In the spring there are walks to the woods, and the children come home laden with spoils and with so much to tell about the wonders of God's out-of-doors that they all talk at once. "I found a turtle"; "I saw a goldfinch,"; "I saw so many blackbirds." The herd of Jersey cows which supplies milk for the children also furnishes them with many object-lessons.

When the children return from their summer vacations there isn't a single regret. They are glad to be here, glad to be at work again, and glad to be able to talk over the joys of the summer. Dorothy has learned to swim and to waltz; Milford can row; Sarah raised a cotton plant; Angus, for a few days, did a man's work on his father's farm. Baker, who

came to us three years ago, has begun to use French; he has it at meals and has no difficulty in asking at table for bread, butter, meat, and other things.

The school is surrounded by an acre of ground, with many beautiful shade and fruit trees; the latter furnish us with fresh fruit in season and with jellies and preserves for the winter months. There is also a vegetable garden, a portion of which is set aside for the children's use, where they carry out their own little plans. Anything raised by them is welcomed with a shout when it appears in the dining-room.

The city of Washington affords many educational advantages. The children are taken to the "Zoo," the Corcoran Art Gallery, the museums, Arlington, and Mt. Vernon. These trips supplement their work in the class-rooms.

They had the opportunity of viewing the recent inaugural procession from a grandstand close to the White House, and having seen President Wilson on that occasion, he already seems like an old friend to them.

When our children leave us, it is intended that they shall continue their education with their hearing brothers and sisters.

## THE PHYSIOLOGICAL BASIS OF THE VISIBLE MOVEMENTS IN LIP-READING

BY EDWARD B. NITCHIE

Principal New York School for the Hard-of-Hearing, Contributing Editor "The Volta Review"

**A** KNOWLEDGE merely of the physiological formation of the different sounds of speech is of little value to the lip-reader, for only about one-quarter of the formative movements give aid directly to the eye; the remaining three-fourths are not visible. Moreover, a good proportion of the theoretically visible one-fourth are in actual practise so obscure and difficult to see that the aid they directly render the eye is almost nil.

Between the invisible formative movements and the visible movements by which the sounds are revealed, there is, however, often a close causal connection; that is, though the revealing movement may not in any way be essential to the sound formation, it does frequently arise as a direct result of the action of the organs by which the sound is formed.

While a knowledge of sound formation and of the relationship between formation and revelation is of little value to the lip-reader, it is of great value to the teacher and should be a part of his equipment for the work. At the risk of stating facts known to most, though perhaps not to all, readers of this article, I will "begin at the beginning."

The organs of speech with which we shall need to concern ourselves are the larynx, glottis, vocal cords, pharynx, nasal passage, soft palate, tongue, and lips. The last four need no explanation. The larynx is the organ of voice, commonly called the Adam's apple, consisting of a cartilaginous box, across which are stretched the two vocal cords. The cords, by vibration, produce voice. The opening between the cords is the glottis. When the cords are vibrating, the glottis is narrow, almost like a line; but when the cords are not in vibration, as for all non-vocal sounds, the glottis is open

and rounded in shape, allowing at this point a free passage of the breath. The pharynx, commonly called the throat, is the air passage extending from the glottis to the mouth cavity.

### TWO GROUPS OF SPEECH SOUNDS

Speech sounds are divided into two main groups—consonants and vowels. What the vowels and consonants are, every one knows; every teacher ought to know why vowels are vowels and consonants consonants and the fundamental differences between them. The derivations of the words are significant: vowel, from *vocalis*, from *vox*, "voice"; consonant, from *con-*, "with," and *sonare*, "to sound." Vowels are all voice sounds; consonants are always sounded with a vowel and cannot easily be produced except when so combined. Speech all of vowels would be inarticulate; hence consonants are sometimes called the articulative sounds, the sounds that join the vowels together. But the fundamental difference between vowels and consonants is that vowels are open sounds—that is, with a free, unobstructed passage for the vocalized breath through the mouth; while consonants are stopped sounds—that is, with an obstructed passage for the breath or vocalized breath through the mouth—the sound being formed usually by the removal of the obstruction. As a corollary, consonants are primarily movements of the organs, while vowels are shapes or positions; also, consonants are quick in formation, while vowels are relatively, though not actually, slow. All vowels are vocal sounds—that is, the vocal cords vibrate to form them; some consonants are vocal and some non-vocal.

It will be of advantage to summarize these differences in tabular form, thus:

Consonants.	Vowels.
1. Obstructed.	Unobstructed.
2. Movements.	Shapes.
3. Quicker.	Slower.
4. Some vocal, some non-vocal.	All vocal.

The formation of the consonants and the relationship between their formation and revelation are much simpler and easier to understand than those of the vowels; hence we will proceed to the consideration of the consonants first.

### CONSONANTS

Consonants are obstructed sounds. The organs which may obstruct the breath are lips, tongue, and soft palate; and there are three ways in which the breath may be obstructed—totally, centrally, laterally. Total obstruction means that the passage of the breath through the mouth is entirely stopped by either the lips or the tongue or the soft palate, the obstruction, however, being immediately removed, except in the case of the nasal consonants, in order to form the sounds. Central obstruction means that there is a partial stoppage of the breath by one of the organs in the center of the mouth passage, allowing an emission of the breath laterally or at the sides. Lateral obstruction means that there is a partial stoppage of the breath by one of the organs at the sides of the mouth passage, allowing a central emission; thus lateral obstruction and central emission are interchangeable terms, as are likewise central obstruction and lateral emission.

While in different languages examples may be found of each kind of obstruction by each organ, in English we have no central nor lateral obstruction of the breath by the soft palate. The lips and the tongue may obstruct the breath in each of the three ways.

For three English sounds, the nasals, *m*, *n*, *ng*, the mouth passage is totally stopped while the vocalized breath passes through the nose. A popular misunder-

standing of nasal sounds is found in the idea that a person with a cold in his head talks through his nose; in fact, the reverse is true, for, the nasal passage being blocked, the sounds that should pass through the nose are compelled to find passage through the mouth, and "Will you bring me my fan"? for example, becomes "Will you brig be by fad"? Nasal sounds, by the way, are practically always vocal.

The majority of the vocal consonants have, in English, non-vocal counterparts. For example, *b* and *p* are formed precisely alike, except that for *b* the vocal cords vibrate, while for *p* they do not. The same difference holds between *d* and *t*, hard *g* and *k*, *z* and *s*, etc.

What has been said so far about consonants may be summarized, and at the same time the consonants classified, by the following table. Non-vocal or breath sounds are in Roman type; vocal sounds are in italics. Remember, also, that *m*, *n*, and *ng* are nasal.

Consonants classified by formation	Totally obstructed.	Centrally obstructed.	Laterally obstructed.
Lips.....	<i>p</i> , <i>b</i> , <i>m</i>	<i>f</i> , <i>v</i>	<i>wh</i> , <i>w</i>
Tongue...	<i>t</i> , <i>d</i> , <i>n</i>	<i>th</i> (in breath), <i>lh</i> (in breathe)	<i>r</i> <i>s</i> , <i>z</i> <i>y</i> (in hue= hyoo), <i>y</i> (in you) <i>sh</i> , <i>zh</i> (in azure)
Soft palate...	<i>k</i> , hard <i>g</i> <i>ng</i>		

All the fundamental consonants are contained in the above table. *H*, commonly classified as a consonant, is an aspirate and does not partake of any of the characteristics of a consonant, except

that it always occurs with a vowel. The consonants which do not appear in the table are either variations or combinations of those that do appear. The variations are many, as *c* for *k* (in cat), *c* for *s* (in piece), *gh* for *f* (in enough), etc., and need not be detailed here. The combinations are illustrated in the following table:

#### CONSONANT COMBINATIONS

*ch* (in bachelor)=*tsh* (batshelor)  
*j* or soft *g* (in pigeon)=*dzh* (pidzhun)  
*x* (in box)=*ks* (boks)  
*x* (in exact)=*gz* (egzact)  
*nk* (in rank)=*ngk* (rangk)  
*qu* (in quite)=*kw* (kwite)

*Qu* is really a variation of a combination. A variation of *ch* is found in *tch* (catch), and of soft *g* in *dg* (ledger). It should also be remembered that in such a combination as *tsh* (for *ch*) the two elements run together and are not so definitely pronounced as when they appear separately.

With the foregoing general description of the formation of the consonants as a basis, we can proceed to a more detailed description of the formation, the revelation, and the relationship between the formative and the revealing movements. We will take them up under a classification based on the organ of obstruction—that is, first, those obstructed by the lips, or labial consonants; then those obstructed by the tongue, or lingual consonants, and finally those obstructed by the soft palate, or palatal consonants.

#### LABIAL CONSONANTS

All three kinds of obstruction occur for the labial consonants—total, central, and lateral.

##### TOTALLY OBSTRUCTED—P, B, M

*Formation*.—For *p* and *b*, the lips open from a shut position with a slight explosion of the breath; for *m*, the lips may remain closed, while the breath passes through the nose. *P* is non-vocal, *b* is vocal, and *m* is vocal-nasal.

*Revelation*.—*P*, *b*, and *m* are revealed to the eye by the shut characteristic of the lips. Except in exaggerated speech, there is no visible difference between them; they must be told apart by the context.

*Relationship*.—For *p*, *b*, and *m*, formation and revelation are practically identical—that is, they are revealed by their fundamental formative movement.

##### CENTRALLY OBSTRUCTED—F, V

*Formation*.—For *f* and *v*, the center of the lower lip is withdrawn from a position touching the upper teeth. *F* is non-vocal; *v* is vocal.

*Revelation*.—*F* and *v* are revealed to the eye by the touch of the lower lip to the upper teeth. There is no visible difference between them; they must be told apart by the context.

*Relationship*.—The revealing movement for *f* and *v* is identical with their fundamental formative movement.

##### LATERALLY OBSTRUCTED—WH, W

*Formation*.—For *wh* and *w*, the lips, and particularly the sides of the lips, open from a rounded or puckered position, in which the central emission aperture is marked. The extreme backward movement of the tongue tends also toward a lateral obstruction in the back of the mouth by tongue and soft palate. *Wh* is non-vocal; *w* is vocal.

*Revelation*.—*Wh* and *w* are revealed to the eye by the puckering of the lips and the small central aperture. There is no visible difference between them; they must be told apart by the context.

*Relationship*.—The revealing movement for *wh* and *w* is identical with their fundamental formative movement.

#### LINGUAL CONSONANTS.

Lingual consonants are subdivided into two groups: (1) Those in which the point of the tongue tends to curve upward while the top of the tongue tends to be depressed, and (2) those in which the point of the tongue tends to be depressed while the top curves upward. Consonants of the first group are called *point con-*

sonants; those of the second group *top consonants*.

#### POINT CONSONANTS

All three kinds of obstruction occur for the lingual point consonants—total, central, lateral.

#### TOTALLY OBSTRUCTED—T, D, N

*Formation*.—For *t* and *d*, the flattened point of the tongue opens from a shut position against the upper gum with a slight explosion of the breath; for *n*, the tongue may remain shut against the gum while the breath passes through the nose. *T* is non-vocal; *d* is vocal, and *n* is vocal-nasal.

*Revelation*.—*T*, *d*, and *n* are difficult sounds to see; often they must be revealed by the context. But sometimes the movement of the flattened tongue to or from the upper gum will be of aid to the eye. The fact that the teeth are close together and the lips usually only slightly parted may also give some little help. There is no visible difference between these three sounds; they must be told apart by the context.

*Relationship*.—In so far as *t*, *d*, and *n* are revealed by their tongue movement, formation and revelation are the same. The close teeth and slightly parted lips are natural concomitants of the high tongue position which the formation requires.

#### CENTRALLY OBSTRUCTED—L, TH

##### L

*Formation*.—For *l*, the pointed tip of the tongue is withdrawn from a position touching the upper gum, the breath having lateral emission around the sides of the tongue. *L* is vocal.

*Revelation*.—*L* is revealed to the eye by the pointed tongue movement to or from the upper gum.

*Relationship*.—The revealing movement for *l* is identical with its fundamental formative movement.

##### Th

*Formation*.—For *th*, the pointed tip of the tongue is withdrawn from the upper

teeth. *Th* in “breath” is non-vocal; *th* in “breathe” is vocal.

*Revelation*.—*Th* is revealed to the eye by the tongue showing either between the teeth or just behind the upper teeth.

*Relationship*.—The revealing movement for *th* is identical with its fundamental formative movement.

#### LATERALLY OBSTRUCTED—R, S, Z

##### R

*Formation*.—For *r*, the sides of the tongue touch the upper teeth and gum at their sides; the point of the tongue is curved upward, but does not touch the upper gum or roof of the mouth; the breath, passing over the raised point of the tongue, causes the vibratory movement characteristic of *r*, which vibration, when intensified, gives the rolled *r*. *R* is vocal.

*Revelation*.—*R*, though formed by the tongue, is revealed to the eye by the lips, the corners (not the whole lip aperture, as for *wh* and *w*) of the lips being drawn together or puckered.

*Relationship*.—The revealing movement for *r* bears not only a concomitant, but also an auxiliary, or helping, relationship to its formative movement. The central lip aperture, caused by the puckered corners, helps direct the breath over the raised point of the tongue; whereas, without this help from the lips, the breath tends toward a lateral emission around the raised point of the tongue, instead of a central emission over it. *R* may be pronounced without help from the lips, but is pronounced more easily with such help; hence the revealing movement for *r* is not necessary, but is auxiliary.

##### S, Z

*Formation*.—For *s* and *z*, the sides of the tongue touch the upper teeth and usually also the upper gum at their sides; the point of the tongue has an upward tendency, but the tip of the tongue is slightly flattened, forming a narrow, slit-like passage between it and the roof of the mouth, or the upper gum. The breath passing through this narrow opening



gives the hissing sound characteristic of *s* and *z*. A similar sibilant sound results from the wind whistling through a crack. *S* and *z* are among the comparatively few consonants that can be easily formed and held with a resultant almost perfect sound. *S* is non-vocal and *z* is vocal.

*Revelation.*—*S* and *z* are not invariably revealed to the eye by any movement. The teeth are very close together; but as the teeth are close together for so many other sounds, this gives little help. The chief reliance of the lip-reader should be on the slightly tremulous movement of the muscles just outside the corners of the mouth. It is a movement that appears frequently, but not always, and needs much practise. There is no visible difference between *s* and *z*.

*Relationship.*—In so far as *s* and *z* are revealed by the close teeth, the revealing movement is merely concomitant with the high tongue position. The tremor at the corners of the mouth is due to a tightening of the muscles there in the endeavor to draw the lips into a narrow, slit-like passage as a sort of extension and intensification of that formed by the tongue. In fact, a sibilant sound (not *s*, but similar to *s*) may be formed, with a little practise, by the lips alone, when held as above described. Thus this revealing movement for *s* and *z* bears an auxiliary relationship to their formative movement.

#### TOP CONSONANTS

Lingual top consonants, in English, are obstructed only laterally.

LATERALLY OBSTRUCTED—Y, SH, ZH

#### Y

*Formation.*—For consonant *y*, the sides of the tongue touch the upper teeth and upper gum at their sides; the top of the tongue is arched and the point depressed, the sound being formed as the tongue leaves this position. *Y* is vocal, except in such words as "hue" (=hyoo), "human," etc., where long *u* is preceded by the aspirate *h*.

*Revelation.*—Usually for *y* the lip-reader must depend upon the context.

In rapid speech the tongue gives no help. The teeth are close together and the lips are relaxed with a narrow opening.

*Relationship.*—In so far as *y* is revealed by the teeth and lips, the revealing movement is merely concomitant with the high tongue position and the quick formation.

#### Sh, zh

*Formation.*—For *sh* and *zh* (azure = azhure), the sides of the tongue touch the upper teeth and upper gum at their sides; the top of the tongue is somewhat raised, though not so much as for *y*, and the point of the tongue, too, is somewhat raised, though not so much as for *s*. The result is a funnel-shaped passage between the tongue and the roof of the mouth, the breath passing through which gives the rushing sound characteristic of *sh* and *zh*. A similar rushing sound may be produced by blowing forcibly through a small funnel. *Sh* and *zh*, like *s* and *z*, may be easily formed and held with a resultant almost perfect sound. *Sh* is non-vocal and *zh* is vocal.

*Revelation.*—*Sh* and *zh*, though formed by the tongue, are usually revealed to the eye by lips thrust forward, or projected. There is no visible difference between these two sounds.

*Relationship.*—The projected lips for *sh* and *zh* assume a funnel-like shape, and so act as an extension and intensification of the funnel-shaped passage formed by the tongue. In fact, a rushing sound (not *sh*, but similar to *sh*) may be formed, with a little practise, by the projected lips alone. Thus this revealing movement for *sh* and *zh* bears an auxiliary relationship to their formative movement.

#### PALATAL CONSONANTS

Palatal consonants, in English, are obstructed only totally.

TOTALLY OBSTRUCTED—K, HARD G, NG

*Formation.*—For *k* and hard *g*, the back of the tongue and the soft palate open from a shut position, with a slight explosion of the breath; for *ng*, the back of the tongue and the soft palate may

remain closed while the breath passes through the nose. *K* is non-vocal, *g* is vocal, and *ng* is vocal-nasal.

*Revelation.*—Usually *k*, hard *g*, and *ng* must be revealed by the context. Occasionally a drawing of the muscles of the throat just above the Adam's apple will give aid to the eye; though, if seen at all, this movement must be seen while the lip-reader's eyes are focused on the mouth of the speaker. There is no visible difference between *k*, *g*, and *ng*.

*Relationship.*—In so far as the throat movement reveals *k*, *g*, and *ng*, the revealing movement is concomitant with the formative action of the tongue.

What is said above of the formative and revealing movements of the fundamental consonants is true, also, of their variations, and usually, also, of their combinations. But in the combinations *tsh*, for soft *ch* (bachelor), and *dzh*, for *j* and soft *g* (pigeon), the *t* and the *d* elements, difficult at best, are practically never visible.

We may summarize the foregoing discussion of the consonants by classifying them as follows:

I. Consonants formed and revealed by the same organ.

a. Formed by the lips and revealed by the lips:

*p, b, m*  
*f, v*  
*wh, w*

b. Formed by the tongue and revealed by the tongue:

*t, d, n*  
*l*  
*th*

II. Consonants formed in one way and revealed in another.

a. Consonants formed by the tongue and revealed by the lips:

*r*  
*s, z*  
*sh, zh*

b. Consonants formed by the tongue or lips and revealed by the context:

*y*  
*k, g, ng*

## VOWELS

A free, unobstructed passage for the vocalized breath is the fundamental characteristic of vowel formation. The distinctive character or quality of each vowel is determined by the shape of that passage. The vocal cords vibrate in the same way for all vowels; these air vibrations are then shaped or modulated in the resonance passage, extending from the larynx to the lips into *ā*, or *ē*, or *ī*, or whatever the desired vowel may be.

The speech organs which change the shape of the resonance passage are the lips, the tongue, and the soft palate. The soft palate, acting with the back of the tongue, changes the shape of the pharynx. The tongue, sometimes acting with the lips, changes the shape of the mouth passage. The lips are the least important of the organs in vowel formation; the tongue is the most important; and in the tongue action the fundamental basis is found for the classification of the vowels.

The tongue changes the shape of the resonance passage by a change of position. There are nine fundamental tongue positions, though all are subject to more or less variation. These nine positions may be roughly illustrated by a diagram, thus:

	Back	Middle	Front
High . . . . .	.	.	.
Medium . . . . .	.	.	.
Low . . . . .	.	.	.

These dots are not meant to show the exact relative positions of the tongue, but rather the scheme of the positions. Thus, taking the three dots on the top row, from left to right: The first dot would represent a high and a back position of the tongue; the third dot a high and a front position, and the middle dot a high and a middle position that is neither front nor back, but between the two extremes. The dots of the bottom row represent a low position of the tongue, with changes from back, to middle, to front. The medium row of dots represents a tongue position that is neither high nor low, but between these two extremes, with changes likewise from back, to middle,

to front. It must be borne in mind that none of these changes are very great; probably the extreme change from a front to a back position is seldom more than one-half of an inch in ordinary speech and no greater, also, from high to low (though in careful speech greater changes may easily be made).

These nine tongue positions may be called, for convenience of reference, high-front, high-middle, high-back, medium-front, medium-middle, medium-back, low-front, low-middle, low-back.

The soft palate and the back of the tongue, acting together, change the shape of the resonance passage (1) by a contracting or tightening of the parts, and (2) by a relaxing of them. When contracted, the pharynx becomes narrowed or close (not closed); when relaxed, the pharynx becomes widened or open. The action of the back of the tongue with the soft palate affects, more or less, the position of the tongue as a whole. With a close pharynx—that is, with a contracted tongue and palate position—the tongue tends to be slightly higher in the mouth than for an open pharynx, which has a relaxed tongue and palate position; thus, for each of the nine fundamental tongue positions there are two possible variations arising from the action of the back of

the tongue and soft palate. Altogether, then, there are eighteen theoretically possible tongue positions, though they do not all occur in ordinary English speech.

(It may be said, parenthetically, that in using the word "position" in describing vowel formations, I do so advisedly, although for the lip-reader these positions in actual practise have all the effect of movements.)

The lips change the shape of the resonance passage (1) by rounding or puckering, (2) by relaxing, and (3) by drawing back, or extending, at the corners. But the relaxing and the extending of the lips are concomitant or auxiliary actions and are not necessary to the vowel formations. It is only necessary that the lips should be open to allow a free passage for the breath. Even the puckered vowels *can* be formed without aid from the lips, though this is a matter of such difficulty that the puckering must be considered as a truly necessary element in the formation of these vowels.

The table below gives, in a form easy for reference, the classification of the vowels and includes a description of their formation according to the foregoing exposition of the action of lips, tongue, and soft palate. The table is based on the position of the tongue; the

Vowels classified by their formation.		Back.			Middle.			Front.		
		Puck- ered.	Re- laxed.	Ex- tended.	Puck- ered.	Re- laxed.	Ex- tended.	Puck- ered.	Re- laxed.	Ex- tended.
High	Close	long oo (ū)								ē
	Open	short oo			unacc. oo	unacc. ī			ī	
Medium	Close	(ō)	ū							(ā)
	Open	o in "ore"	a in "path" (ī), (ow)		unacc. ō	unacc. ū				a in "care"
Low	Close	aw (oy)								ē
	Open	o in "or" and "off"	ah and o in "odd"		unacc. aw					ă

nine main squares contain the vowels for each of the nine fundamental tongue positions. The small sub-squares separate the main groups on the basis of the action of the lips and of the pharynx. The terms "close" and "open" refer to the pharynx. The terms "puckered," "relaxed," and "extended" refer to the lips. It will be noticed that within each main group the vowel with the close pharynx is placed above that with the open pharynx, for the reason that the close vowel has a slightly higher tongue position than the open. Diphthongs, which will be treated more fully later, are placed in the table in parenthesis under that classification to which their radical element belongs.

#### CLASSIFICATION OF VOWELS

The classification of some of these vowels will be in dispute; but passing that by for the moment, let us see how to apply the table to discover the formation of any vowel sound. To do so, we need only to answer these questions:

1. Is the tongue high, or medium, or low?
2. Is the tongue back, or middle, or front?
3. Is the pharynx close or open?
4. Are the lips puckered, or relaxed, or extended?

Select any vowel, as, for example, short *ū*. Answering the questions in order, by reference to the table, we find that *ū* has (1) a medium and (2) a back position of the tongue; (3) a close pharynx, and (4) relaxed lips; or take short *ā*, and the answers are (1) low, (2) front tongue, (3) open pharynx, and (4) extended lips; or long *oo*: (1) high, (2) back tongue, (3) close pharynx, and (4) puckered lips; or unaccented *ū*: (1) medium, (2) middle tongue, (3) open pharynx, and (4) relaxed lips. Similarly the complete formation of any of the vowels may be determined, except that, for the diphthongs, the further table to be given later will be needed.

I am convinced that most of the disputes about the formation of vowels arise from divergent views of their pronunci-

ation. Thus, while I have classified the *o* in "ore" as medium-back tongue, open pharynx, and puckered lips, many people pronounce it like long *ō*, with a close pharynx and a diphthongal quality; and even more, probably, pronounce it like the *o* in "or," with low instead of medium position of the tongue. Again, *o* in "or" and "off" is classified with an open pharynx, while many would classify it with the close pharynx, like *aw*; also, the *o* in "off" is classified with puckered lips, though not a few would pronounce it with relaxed lips. On the other hand, *o* in "odd" is classified with relaxed lips, though not infrequently it is formed with puckered lips. Usually *o* in "odd" has the same formation as *a* (ah) in "art," except that it is formed more quickly, and perhaps this quicker formation will give it a very slightly higher tongue position; and again, the *a* (ah) in "art" is sometimes, somewhat provincially, heard like short *ă*, with front instead of back tongue and with extended instead of relaxed lips. Another common variation from the classification of the table is the *a* in path, which, though correctly not so broad as *ah*, is sometimes pronounced *ah*, and which is very often pronounced with the sound of short *ă*. Any other seeming inaccuracies which the student may discover will be due, I am confident, to divergence in his pronunciation from what I have used as standard. I must confess that I do not personally pronounce all the vowels just as I have classified them.

#### PRINCIPLE OF CONTRAST

Keeping this possibility of divergent pronunciations in mind, the student may test the vowel formations best by using the principle of contrast. Thus, to test a high position of the tongue, contrast the sound with one having a low position and *vice versa*; to test a back position, contrast it with a front; to test a medium position, contrast it with high and low; to test a close pharynx, contrast it with an open, and to test puckered lips, contrast with relaxed and with extended lips. In so far as possible, it is advisable to

have all the elements of the contrasted vowels the same except the one which it is desired to contrast. Thus, to test the high tongue position for long *oo* (high-back-close-puckered), contrast it with *aw* (low-back-close-puckered), and not with *ā* (low-front-open-extended), which has no element in common with long *oo*. The back tongue position of long *oo* should be tested by contrast with *ē* (high-front-close-extended). It is true that the action of the lips is not in common for long *oo* and *ē*, but as in English we have no puckered front vowels, this contrast is the best we can get. To test the close pharynx of long *oo* (high-back-close-puckered), contrast it with short *oo* (high-back-open-puckered). Similarly, tests can be made made by contrast for all the vowels.

Teachers should be able to pronounce correctly every vowel alone by itself; but if difficulty is found in doing so, put the vowels in words, as long *oo* (coot) and short *oo* (good), and pronounce the words to secure the contrast. The unaccented vowels should preferably be pronounced in words, for by their very nature of being unaccented it requires a high degree of skill to give them their right quality, except in unaccented syllables. Thus, to test the middle tongue position of unaccented *ū*, contrast the middle tongue of unaccented *ū* in "upon" with the back tongue of accented *ū* in "up" and with the front tongue of long *ā* in "ape."

#### INTERESTING FEATURES OF THE VOWEL TABLE

Several things of interest are made apparent by the table of the vowels. One is that although there are theoretically 54 possible fundamental vowel variations, we have in English less than half that number. Notice that we have no puckered front vowels in English; that the front vowels, on the contrary, tend to be extended. It will be remembered, moreover, that the extended action of the lips is concomitant with, rather than necessary to, the vowel formations, and not infrequently the vowels classified as extended are relaxed in rapid speech; and

short *ī*, which is classified as relaxed, may be extended in careful speech. In any case, it is only the front vowels that are extended, not the middle nor the back vowels. As vowels are essentially unobstructed sounds, the extension of the lips seems to be an unconscious attempt to give as free passage for the breath as possible when the tongue is front in the mouth, where possibly it (the tongue) may have a tendency to obstruct the labial orifice, which the lip action would counteract.

The unaccented vowels, as the table shows, all have the middle tongue position. This is undoubtedly due to the fact that unaccented vowels, being spoken with least care, take the formation easiest to assume, and that is a tongue position between the extremes of front and back. For the same reason, the unaccented vowels all have the open, not the contracted or close, pharynx. In ordinary speech, also, the relaxed unaccented vowels are very common; the puckered are very rare. A low tongue position for an unaccented vowel is also a rarity, the medium being the most common. In fact, unaccented short *ū* (medium-middle-open-relaxed) is the typical unaccented sound, and it may occur, according to the speaker, for any unaccented vowel.

A diphthong is properly a combination of two *vowel* sounds in a single syllable. Of our six diphthongs (*ā*, *ī*, *oy*, *ow*, *ō*, and *ū*), only the first five strictly fulfill this definition; for the first element of long *ū* is usually the consonant *y*, and only occasionally is this *y* sufficiently glided to partake of a vowel quality. Of the other five diphthongs, the first element of each is a pure, accented vowel, and the second element a glided vowel, equivalent to an unaccented sound. The radical element by which these five diphthongs are classified in the table is their first element; the radical element of long *ū* is its second. Of two of the diphthongs, namely, *ā* and *ō*, their radical sounds occur nowhere else except in the diphthongs; but in the table below the simple characters *a* and *o* are used to represent these elements.



## DIPHTHONGS

ā (in ape)=acc. *a* + unacc. *ī*

ī (in high)=acc. *a* as in "path" + unacc. *ī*

oy (in boy) = acc. *aw* + unacc. *ī*

ow (in how) = acc. *a* as in "path" + unacc. *oo*.

ō (in go)=acc. *o*, + unacc. *oo*

ū (in use)=cons. *y* + acc. long *oo*

The unaccented elements of the diphthongs, it must be remembered, are glided and not pronounced fully nor distinctly.

What is sometimes called the vowel *ur* is not included in the table of vowels. In the word "burn," usually the *u* and the *r* are not two separate sounds, but coalesce into one sound with a true vowel quality. The formation partakes of some of the characteristics of *r*, particularly in the slightly raised point of the tongue; which, however, is markedly less raised than for the consonant. To describe it according to the vowel classification, we should say that the forward part of the tongue has a medium position, while the back part has a low position. It also has a middle tongue position, not back, as for short *u*. The pharynx is open. The lips are puckered at the corners.

The table of the vowels indicates a tendency to have an open pharynx for a vowel followed by *r*. This is seen in the *o* in "ore," the *o* in "or," and the *a* in "care." It is also seen in the sound of *ur*, which has just been described. Long *ē* before *r*, as in "fear," is very apt to become like a short *ī*, with open pharynx. Long *oo* before *r*, as in "poor," also is inclined to take the open pharynx and become short *oo*.

## THE REVEALING MOVEMENTS OF THE VOWELS

From all the foregoing discussion it will be seen that the lips have the least necessary part in the formation of the vowels. On the other hand, the vowels, if revealed to the eye of the lip-reader, must be revealed by the lip movements,

for the tongue and pharynx movements are too obscure to offer any real help. Thus the speech organ that reveals the vowels has only an auxiliary or concomitant force in their formation. It follows that the revealing movements must be more or less variable according to the speaker and the conditions of the speaking. We have already seen how vowels that theoretically have extended lips may have relaxed lips, and at least one vowel that is ordinarily relaxed may sometimes be extended. No system of visible vowel movements can be always exactly correct; the best it can do is to represent tendencies. This is due partly to the fact that the revealing movements are not, in the main, formative movements, and partly to the changes effected by variation from slow to rapid speech.

In general, however, the classification of vowels into three labial groups—puckered, relaxed, extended—is a true one. And under each group there are three widths of opening between upper and lower lips—a narrow opening, a medium, and a wide. In careful speech there may be more than these three widths, but for natural speech, allowing for such variations as have been referred to, this grouping of the vowels is accurate.

## VOWELS CLASSIFIED BY VISIBLE MOVEMENTS

The following table groups and classifies the vowels that in the previous table were classified by their formation, now by their visible, revealing movements. The terms "puckered," "relaxed," and "extended" refer particularly to the action of the lips, and the terms "narrow," "medium," and "wide" refer to the width of the opening between the lips. Diphthongs, in parenthesis, again are classified according to their radical elements.

This table will give the description of any of the revealing vowel movements. Thus, for long *oo*, the lips are puckered with a narrow opening; for short *ū*, the lips are relaxed with a medium opening; for short *ā*, the lips are extended with a wide opening, etc. The tongue position described in the formation of the vowels

Vowels classified by their revealing movements.	Puckered.	Relaxed.	Extended.
Narrow	long oo, (ū)	ī, unacc ī	ē
Medium	short oo unacc. oo	ŭ, unacc ŭ	ě, a in "care," (ā)
Wide	aw, (oy), (ō) o in "ore," o in "or" and "off" unacc. ō, unacc. aw	ah, o in "odd," a in "path," (ī), (ow)	ă

may be of some help to the lip-reader for the wide vowels *ah* and *ă*, but rarely for any of the other vowels.

To find the description of the diphthongs from the table, we must remember the component parts as given in the table of diphthongs. For example, *oy* is a combination of *aw* and unaccented short *ī*; and therefore *oy* combines the visible movements for those two sounds, puckered-wide shading off into relaxed-narrow. Similarly, the movement for the unemphatic element of the diphthongs *ā* and *ī* is also the relaxed narrow; the movements for the emphatic elements are shown by the classification of the sounds in the table. For the unemphatic element of the diphthongs *ō* and *ow*, namely, unaccented *oo*, the movement theoretically is the puckered-medium; but actually the width of the opening varies between the narrow and the medium according to the carefulness of the utterance, in more careful speech tending to the narrow, in less careful to the medium opening.

The table, it will be noticed, groups several sounds under one movement, and this is particularly true of the puckered-

wide and of the relaxed-wide movements. In careful speech these sounds would have to be subdivided further. For example, the puckered-wide movement might be subdivided into (1) an intermediate-wide and (2) a full-wide opening. Under the first sub-group might come *ō*, unaccented *ō*, and possibly *o* in "ore"; under the second sub-group would come *aw*, *oy*, *o* in "or" and "off," and unaccented *aw*. The relaxed-wide, too, might be similarly divided with *a* in *path*, *ī*, and *ow* under the intermediate-wide sub-group, and with *ah* and *o* in "odd" under the full-wide sub-group. However, in ordinary rapid speech these sub-groups will tend to merge into one which will be nearer to the intermediate-wide of careful speech than to the full-wide. In other words, the extreme widths of opening tend to disappear when speech is rapid.

To test the classification of the vowel movements as given in the table by pronouncing the sounds singly would be a mistake; for such pronunciation is almost sure to be careful, while the classification is based on natural utterance. Nor is it a sure test even to pronounce a word containing the desired sound. The best way is to put the word in a sentence, and, speaking rapidly, concentrate observation on the special sound tested. Thus, for short *ă*, don't say "ă," nor yet "cat," but "Pussy cat, pussy cat, where have you been?" If the three are tried, first the *ă*, then "cat," then the sentence, nine times out of ten the width of the opening for *a* in the sentence will be less than in the word alone or than in the sound alone.

#### GENERAL RELATIONS OF TWO CLASSIFICATIONS

If the table of the revealing movements of the vowels is compared with the table of vowel formations, certain general relationships will become apparent. Thus the high, medium, and low tongue positions correspond in general to the narrow, medium, and wide lip openings. Similarly, a front tongue position tends to go with extended lips, and a

middle or back tongue position with relaxed lips, unless the formation requires that the lips should be puckered. These correspondences may be stated in the form of the following rules of relationship between the formative and the revealing vowel movements:

1. High tongue tends to give narrow lip-opening.
2. Medium tongue tends to give medium lip-opening.
3. Low tongue tends to give wide lip-opening.
4. Front tongue tends to give extended lips.
5. Middle tongue tends to give relaxed lips, unless the formation requires that the lips should be puckered.
6. Back tongue tends to give relaxed lips, unless the formation requires that the lips should be puckered.

#### EXCEPTIONS TO THE RULES

Exceptions to these rules arise partly from variations caused by a quick or a slower enunciation and partly by the fact that the pharynx as well as the tongue is an important factor in forming the vowels. An open pharynx, for example, tends slightly to lower the tongue, and the lower tongue thus tends to a wider lip-opening than for a close pharynx. Quickly spoken vowels also tend to a less careful formation than for those more slowly spoken. These rules of exception may be formulated thus:

1. *a.* An open pharynx tends slightly to widen the lip-opening.
- b.* A close pharynx tends slightly to narrow the lip-opening.
2. *a.* Vowels spoken quickly tend to have a narrower lip-opening than when spoken slowly, except puckered vowels.
- b.* Vowels spoken slowly tend to have a wider lip-opening than when spoken quickly.
- c.* Quickly spoken puckered vowels tend toward a medium degree of puckering between narrow and wide.
- d.* Quickly spoken vowels, except accented puckered vowels, tend to become relaxed.

And the whole scheme of the visible vowel movements is more or less dependent on the personal peculiarities of the speaker's mouth, for which no laws can be laid down.

In taking up the vowels as described in the table of the revealing movements, we shall find that the following, long *oo*, *aw*, (*oy*), *o* in "or" and "off," unaccented *aw*, unaccented *ɪ*, short *ʊ*, unaccented *ʊ*, *ah*, *o* in "odd," long *ē*, (*ā*), *a* in "care," and short *ā*, as well as the vowel element of the diphthong *ū*, are completely explained by the six rules based on the influence of the tongue. That is, fifteen out of twenty-five of the vowels, or sixty per cent, tend to follow in their revealing movements the influence of the tongue regardless of the pharynx or quick or slow formation. Thus, long *oo* has the puckered-narrow movement: It is puckered because the formation requires it; it is narrow because (rule 1) the tongue is high. Short *ʊ* has the relaxed-medium movement: It is relaxed because (rule 6) the tongue is back; and it is medium because (rule 2) the tongue is medium. Short *ā* has the extended-wide movement: It is extended because (rule 4) the tongue is front; and it is wide because (rule 3) the tongue is low. Unaccented short *ɪ* has the relaxed-narrow movement: It is relaxed because (rule 5) the tongue is middle; and it is narrow because (rule 1) the tongue is high. For diphthongs, each element must be discussed separately. Thus, *oy* is a combination of *aw* (puckered-wide) and unaccented short *ɪ* (relaxed-narrow): The *aw* is puckered because the formation requires it, and wide because (rule 3) the tongue is low; the unaccented *ɪ* is relaxed-narrow for the reasons just given in the explanation above. Similarly, the lip-movements of each of the fifteen vowels mentioned may be explained by the rules governing the influence of the tongue.

The variations from these rules by the other ten vowels, short *oo*, unaccented *oo* (*ō*), *o* in "ore," unaccented *ō*, short *ɪ*, *a* in path, (*i*), *ow*, and short *ē*, may be explained by the exceptions which arise from the influence of the pharynx or

from quickness or slowness of formation. Thus, short *oo* has the puckered-medium movement: It is puckered because the formation requires it; it is medium because (exception 1, *a*), although the tongue is high, the open pharynx tends to widen the lip-opening from narrow to medium, and this tendency is intensified because (exception 2, *c*), being a quick sound, it puckers the lips less than the slower long *oo*. Again, short *ē* has the extended-medium movement: It is extended because (rule 4) the tongue is front; it is medium because (exception 1, *b*), although it has a low tongue, the close pharynx tends to narrow the lips from a wide to a medium opening, and this tendency is intensified because (exception 2, *a*), being a quick sound, the lips open less widely than for a slower sound. Short *ī* has the relaxed-narrow movement: It is relaxed because (exception 2, *d*), although the tongue is front, it is usually formed so quickly that the lips are not extended; it is narrow because (rule 1) the tongue is high. Long *ō* is classified with its first element as the puckered-wide, which shades off into the puckered-medium: The lips are wide for the first element because (exception 2, *b*), although the tongue is medium, being a long or slow sound, the tendency is to have a wider lip-opening than it would have if spoken more quickly (see also exception 2, *c*); the lips are medium for the second element (unaccented *oo*) of long *o* because (exception 1, *a*), although the tongue is high, the open pharynx tends to widen the lip-opening from narrow to medium (and for this also see exception 2, *c*). Similarly may be explained the variations from the expected lip-movements of the other vowels mentioned above on the basis either of the influence of the pharynx or of quickness or slowness of formation.

Any one desiring to master a knowledge of the formation, revelation, and relationship between formation and revelation, of the consonant and vowel sounds of the English language, will

find that the best form of exercise is to take not sounds by themselves, not even words, but complete sentences, and analyze each sound represented, telling formation, revelation, and relationship, and verifying the analysis by referring to the tables, descriptions, and rules of this article. Unaccented vowels, in this exercise, should be given their unaccented value; the student should try, not to see how carefully he can pronounce the sentence, but how naturally. To be natural is in fact a keynote for all successful work and teaching along the line of lip-reading.

#### TO SUPERINTENDENTS AND PRINCIPALS.

The date for holding the Tenth Conference of Superintendents and Principals of American Schools for the Deaf has been changed from June 23-30, 1913, to a date four days later—that is, from Friday, June 27, to Wednesday, July 2, 1913.

The formal opening of the Conference will occur Friday afternoon at 2 o'clock, and the closing session will be held on Wednesday afternoon.

Many of those attending will come probably on the day preceding the opening, and dinner will be served at 6:30 o'clock. The Thursday following the close will be observed as "Farewell Day."

Existing circumstances and conditions deny a later date than the one now set, and it is hoped that it will prove reasonably satisfactory to all concerned.

During the first or second week in May a complete program will be published in the *Silent Hoosier* and also sent direct to superintendents, principals, and others.

Let us have for once a full meeting of the Conference wherein every school for the deaf will be fully represented.

On behalf of the Executive Committee,  
RICHARD O. JOHNSON,  
Chairman.

Mrs. Kate Scanlon Herman has been appointed Superintendent of the Kansas State School for the Deaf, Platte, Kansas, to succeed Cyrus E. White, M. A., who has held the position for four years. No dissatisfaction is expressed with Mr. White's management, but the move is purely a political one. However, the opinion is universally expressed that the new superintendent will meet with the utmost success in the duties of her position. Mrs. Herman has been a teacher in the school for 23 years and is intimately acquainted with its needs.

## THE STAMMERING CHILD IN HIS HOME

### Suggestions for Overcoming Impediments of Speech

BY MURIEL ANGIE SMITH, MILWAUKEE, WISCONSIN

**T**HE aim of this article is to offer some practical suggestions to parents who have young children with speech impediments.

There are various causes from which the habit of stammering or stuttering might have resulted. The emotion of fear plays an important part in almost every case. This emotion varies in degree and manifestation in each case. If it has not been the chief cause of the impediment, it tends to make the trouble worse as the child grows older.

#### THE EFFECT OF FEAR ON SPEECH

For a moment let us think of the effect of the emotion of fear on the parts of the human organism that are directly related to the production of voice and of speech control.

First. We find that it has interfered with the action of the diaphragm, thus making the breathing irregular, spasmodic, and labored. A good flow of voice under such conditions is impossible.

Second. The muscular system is affected, becoming tense or rigid. Tenseness in the muscles includes the throat muscles, which in part control the production of voice. This makes the pitch higher, and if the tension is severe enough, wholly stops voice. The tongue becomes tense, which makes its action uncontrollable. The lips tremble or become tense.

Third. The salivary glands act imperfectly and the mouth becomes dry.

If fear is increased to terror, we find all the muscles rigid or thrown into convulsive movements.

#### HOW TO DEAL WITH CHILDREN'S FEARS

The period of greatest fear is usually at about the third or fourth year. It varies with some children, however, who have special experiences later. It is de-

cidedly cruel to compel children to endure terrors or fears.

The first thing to be done is to eliminate the fears the child has. In order to do this, the parent must have, first, self-control and, second, the perfect confidence of the child. Adults have confidence in the person who is truthful. The child also places his confidence in the one who does not tell him falsehoods. His faith in you will be absolute if you never break your word, but keep the promises you make.

Make a survey of his fears. Perhaps you do not know them all. Watch for their manifestations.

Below are some of the fears a child may have:

1. Fear of inanimate objects. The timid child is often afraid of everything to which he is unaccustomed; therefore he should have a variety of experiences outside of his home.
2. Fear of animals.
3. Fear of people (outside of family circle).
4. Fear of being left in a room alone.
5. Fear of storms, wind, etc.
6. Fear of the dark.
7. Fear of imaginary creatures.

To simply say "It is silly for that child to be afraid of a little thing like that" is not solving the trouble. It is not helping the child to overcome his fear, but it succeeds in making him self-conscious and in destroying his confidence in you.

Show him how to meet and control his fears, not by your words alone, but by your own attitude of fearlessness and control. For instance, suppose a child is afraid of a storm. Talk with him quietly, pointing out the beauty of the storm. He will soon admire it, also, if he has confidence in you.

Do not relate his fears and accounts of his nervousness to others in the pres-



ence of the child. He will understand and imagine his troubles and fears are greater than they are. He will also get the impression that he is peculiar and different from other children. Be his chum and keep his confidences. In working together in this way you can help him develop self-control and poise.

#### ATTITUDE OF THE FAMILY AND OTHERS TOWARD THE CHILD

##### 1. *The Parent's Attitude*

There are three requisites the parent must have in order to deal successfully with the stammering child. They are (1) self-control, (2) the confidence of the child, and (3) the ability to observe this world and its phenomena from the child's point of view.

You must never lose your self-control in his presence. At times it may take all the control you have to wait and listen to what he has to tell you. Your face must not express impatience, pity, hurry, nor worry; it should express your optimistic self. In the opinion of your little child, your face should be the sweetest and most beautiful one he has ever seen. He will forget his toys, his books, and his playmates, but he will always remember your face.

Do all you can to prevent him from becoming self-conscious. Never forget what a sincere little creature he is. Never laugh at him nor his ideas. Laugh *with* your child, but never *at* him. Fill his mind with loving, kind, and happy thoughts, but never fear. Read him bright, happy stories. Be careful in the selection of books. Secure those with well-told stories of interest, but with no frightening monsters in them. Tell him truths, not untruths.

Never frighten him into obedience. Consider the effects of utterances like the following: "Now, if you do not mind, the policeman will get you"; "You tell me stories like that again and I will tell the Boogie Man." How sane it is to tell the child the truth. Instead of making him afraid of the policeman, tell him that policemen like good boys; that if he is ever lost, the policeman will take care of

him and find his home. Dispel all fears of "Boogie Man" or other imaginary creatures.

##### 2. *Attitude of Adults*

Other adults with whom the child comes in contact should be considerate and help instead of hindering the work you are trying to accomplish. They should not imitate his speech nor tease him in any way. There is nothing that will make a child lose his control as quickly as being teased. He resents the unfair treatment and then gives way to anger. The greatest care should always be taken to avoid occasions of anger.

If you have to entrust your child to the care of a nursemaid, be sure you can trust her. Do you know how she amuses him? What games do they play together? What are the stories she tells him? Where does he go with her? What does he see and hear while out with her, away from your home? Is she giving him the food that will make him strong and well? Does she obtain obedience through fear? How does she talk? Her speech must not be hurried, but deliberate and easy. Her enunciation should be perfect, but there must not be exaggerated positions of the tongue, lips, or facial muscles. The pitch of her voice should be low.

The nursemaid problem is not an easy one to solve. Many have learned, others have still to learn, that the one we can trust with the best silver and cut glass is not always fitted to care for the most precious of our possessions—the child.

##### 3. *The Attitude of Other Children*

It is well to watch him at play with the other children. Give him the freedom of play, but be like the little mother who said, "I can always see him or hear him, for that is my first duty."

How do his playmates talk? If they do not speak well, his speech will become worse. He must never be ridiculed by his playmates. Children should never be allowed to imitate a stammerer or any one whose speech is peculiar in any way. The one who imitates is very apt to acquire the same trouble. Incorrect speech habits are formed easily and quickly.

Too great stress cannot be laid on the effect this thoughtless treatment has on the sensitive stammerer. If he were cut with a whip, the hurt would not be as severe. There are three ways in which he may meet this treatment.

1. He may laugh with the one who ridicules, but this, however, is rare. If he is brave enough to mask his feelings by means of a smile, there is no smile within. In its place is growing discouragement and resentment, which later will assert itself.

2. He may resent the treatment and become angry. If this is continued day after day, can we not all foresee the effect upon his disposition?

3. He may withdraw from the companionship of the other children. He may enjoy being alone, for he is then free from taunts and ridicule. There is nothing worse for the child than this. He *must not* be left to himself. If he is made to feel that there is some one near who loves him, some one who understands him, he will not wish to be alone, but will seek the companionship of the one who understands it all.

#### THE STAMMERING CHILD HIMSELF

We usually term this child nervous and high-strung. His activeness is one of his chief characteristics. He moves quickly, walks fast, runs fast, thinks fast, and talks fast. We say, "If he would only take his time, he could talk all right." How can we induce him to take his time? He is so energetic and is not happy unless engaged in some activity. We must not crush this activity, nor must we allow it to run at random. We must devise means by which the child becomes master of himself and his storehouse of energy.

How he does enjoy plays of action and excitement! Do not prohibit him from playing "Indian" and "Blind." Be careful, however, that he does not play at these games too long. A play of this nature should be followed by some activity that requires self-control and a low-pitched voice.

Teach the child to stop, when having trouble with his speech, and start easily

on a lower tone. For instance, if he cannot say "Mabel went away," on account of the "M," stop him. First, softly say "abel," then pronounce the whole word softly and lightly, to let him imitate you.

#### INFLUENCE OF OTHERS' SPEECH

Surround him with good speech that is worthy of imitation. He should not hear jerky, spasmodic talk, but well-blended, fluent speech.

Read poems and stories to him often. Children dearly love good poems like those found in Robert Louis Stevenson's "A Child's Garden of Verses." These are good poems to read and teach the child, because the words blend so easily. There are so many other books of poems for children that are very good. Find stories and poems that the child likes and read them well every time. Do not hurry through them, but read them as carefully the hundredth time as you did the first. Children do not tire of the stories and poems they love.

Read him a few of his favorites every night, just before he goes to bed. It closes the day happily. When the child is happy and calm before sleep overtakes him, he will breathe easily and be refreshed in the morning—that is, he will be refreshed if his room is well ventilated. He cannot get too much oxygen. Give him plenty of air to breathe. If he does not breathe through his nose, consult a rhinologist. It is most essential that the child breathe easily and through the nose.

#### DEVELOP THE BEST IN THE CHILD

No doubt we have all heard that stammering children are cross, stubborn, and irritable at times. What child is not? Which side of his nature shall we develop? Shall we allow the disagreeable, stubborn side to dominate, or shall we develop the cheerful, loving side? We have our choice. The imitative child reflects not only all that he sees and hears, but he also reflects the moods of the people around him. We get what we give.

Let us not forget that the "You know I love you, sonny," from a bright, loving

parent will bring a smile from the little one. A smile always clears the atmosphere, if it is a real, genuine smile. I am afraid that too many of us, in our hurry with the many things we have to do each day, do not smile and say, "I love you," to these little human beings as often as we should.

Let us not allow the child's life to be one of unhappiness, blighted hopes, and failure. Instead, guide him carefully, day by day, so that his childhood may not only be a happy one, but that it may also be the foundation for the development of a sincere, optimistic, broad-minded soul.



MONTESSORI CLASS, RHODE ISLAND INSTITUTE FOR THE DEAF



FRESH-AIR PLAY-ROOM OF MONTESSORI CLASS AT THE RHODE ISLAND INSTITUTE FOR THE DEAF

## A REPORT ON THE SCHOOLS FOR THE DEAF OF NEW YORK STATE\*

BY WILLIAM R. STEWART

THE rate of increase of the population of the State of New York for the last decade was over 26 per cent, and figures show that there has been an equal increase of the number of pupils in the schools for the deaf, although in the last year there was a marked falling off in attendance at two schools in New York city, due to the establishment of day schools for the deaf and to the employment of pupils who had not completed the school course. There are in New York three day schools for deaf children, with an average attendance of 246, besides two private schools, in which there are 43 pupils. Many of the day-school children formerly attended the boarding schools, but the majority were not under instruction. There seems to be some increase of the deaf-mute population of the State, and if the Compulsory School Law were made to include deaf-mute children, the number in attendance would probably be much greater than now. Better sanitary conditions and consequent control of disease are doubtless making the rate of increase for the special classes less than that of the general population; but until such time as the "accidental" causes of deafness in children can be more thoroughly controlled, further provision must be made for the increasing numbers who need education. And it must be also remembered that there is wider interest and knowledge among the people of the invaluable work of these schools, and that this more general interest results in greater success in the efforts to secure attendance of pupils.

### COMPULSORY LAW EXTENSION NECESSARY

The compulsory feature of the education law now safeguards the normal child

of school age, but is not enforced in the case of blind or deaf children, although they, more than all other pupils, need careful training in schools for a long period. All such defective children, when normal mentally, should be placed in a good school at four years of age, if not earlier, and continue under instruction until they have completed the studies of the graduating class, which should give them a good preparation for self-support and the responsibilities of adult life. The delay in entering school makes the work of the teachers more difficult, for the normal young child responds quickly to careful training; but when the most impressionable age has passed, the teacher usually finds development slow. Many parents, influenced by affection, refuse to send their deaf or blind children to school, believing they can receive suitable training at home, and that they will have much better protection there than in any institution. If the law required the attendance of every normal deaf or blind child from the age of four years at one of the schools established for the deaf and blind, unless such children shall be under competent instruction elsewhere, they would have the same protection which the Compulsory Education Law gives now to normal seeing and hearing children, and the dangers of ignorance and dependency would be minimized for them.

### STATE SHOULD BEAR EXPENSE

The expense of the maintenance of children in the schools for the deaf and blind after they are 12 years of age is borne by the State, but under that age the counties must bear it. This is unjust to the younger children. Some of the supervisors and superintendents of the poor, who now control appointments of the children who are under 12 years of age, defer the commitment of deaf and

\*Extracted from the Forty-sixth Annual Report of the State Board of Charities of New York, transmitted to the Legislature March 10, 1913.

blind children for years, in order to save the county treasury from the cost of the children's maintenance, and this penurious, unwise, and inhumane policy results in life-long injury to those defective wards of the State.

The State should pay for instruction and maintenance during the entire training period, and this plan will secure earlier admissions and promote more constant attendance at school, thus making the whole course more beneficial. The law should be amended therefore in these two particulars: (1) To enforce attendance, and (2) to make the expense for the education of the blind and deaf children a State charge for the entire period of school attendance.

#### MENTAL AND PHYSICAL EXAMINATIONS

It is of prime importance that the physical and mental conditions of the deaf child shall be studied immediately upon admission to school. He labors under such serious disadvantages that no time should be lost before his teachers are fully advised of his exact physical condition, and thus be enabled to cope with the problem of his mental development without having to learn by experiments whether he has other handicaps beside the loss of hearing.

In some of the schools children are examined by physicians upon admission, but usually these examinations are not complete, nor do they cover the whole body. Except in one school, the medical examination is to determine whether the child has a communicable disease, and does not involve a complete physical chart, which would show the real development of the child at the time of admission to school. As the mental development is necessarily conditioned by the state of the bodily organs, it is apparent that a healthy mental growth cannot be secured if the physical condition is impaired by disease or by other serious organic disturbances. Many children who otherwise are capable of normal progress are handicapped in their classes by physical conditions which have passed unnoted because no medical examination

was made at all, or, if made, was not complete, or has not been repeated with sufficient frequency to note the changes incident to growth. There are so-called "backward" children in the schools who are unable to keep pace with their fellows and whose presence in the class has a tendency to retard the brighter pupils. This causes loss of time and prevents the progress which may be reasonably expected during the school period. In cases where there is no inherited mental defect the "backwardness" of the pupil is due to some improper physical condition, such as adenoids, or eye strain, and there is no reason why such an impairment of power should not be corrected at the earliest possible moment. The expert examination suggested is independent of mental tests which determine the development of the mind, and therefore it should include every child admitted to the school and should precede the determination of mental power. That can be left for subsequent investigation, for although the young deaf child with a very small vocabulary, if any, may be a difficult subject for a mental test upon his arrival at school, a competent physician can learn all the facts in relation to the child's physical condition and record them upon a chart as a basis of comparison in future examinations.

The "feeble-minded" child has no proper place in the ordinary school for the deaf and should be maintained in a separate institution especially equipped for the instruction of the feeble-minded, whether they are deaf or hearing children; but the "backward" deaf children are entitled to an opportunity for education, and therefore their retardation should not exclude them from the schools for the deaf. In these institutions special classes should be organized for them, with competent teachers who understand the reasons for retardation; and then, if the pupils are retarded through accidental causes which can be removed, the special classes will afford ample opportunity for their advancement and preparation to maintain themselves in their regular classes with pupils of their own age.



## IMPROVEMENT IN SPEECH-TEACHING

If the deaf pupil is ever to acquire satisfactory speech, particular attention must be given to the condition of the organs of speech, and the earliest examination of the child at the time of entrance into school should make these organs a special feature. Utterance, power, and tonality depend upon the physical mechanism, and no effort of the pupil can produce satisfactory speech while the vocal organs are in bad condition. The examination chart therefore should show in minute detail the exact condition of the vocal organs and also indicate what may be needed to make them efficient. Some congenital deaf persons have agreeable voices, but in every case such voices have been developed by careful attention to the conditions of the whole vocal mechanism, and the tonality or musical quality is the pleasing result. When properly developed, the voice is essentially musical, and the harshness and monotony of the speech of many deaf people is due to the failure of physicians and teachers to note and correct improper physical conditions.

The cultivation of voice control now receives more attention in the schools for the deaf than ever before, and not only is the ability to utter words so that they may be understood considered essential, but the true place of speech in the curriculum and the significance of vocal culture in the preparation of the deaf for social life, business, or employment are more clearly apprehended. If speech is to be of real value to the deaf, it must be of a character easily understood by all hearers and the voice must be properly trained to enunciate clearly. Every vowel and consonant must have its usual value in the words used and distinctness be aimed at always. Many deaf persons who have been taught in our schools which claim to teach speech cannot speak so as to be understood by ordinary hearers without difficulty. Modulation and distinctness in articulation are essential to good speech, and the drill of the classroom should always be so thorough that at the end of each daily period of in-

struction the faults of articulation disclosed during the recitations may be understood by both teacher and pupil and the proper remedy be employed to correct defects. There are so many noticeable examples of speech facility, of pleasant modulation, even perfect vocalization, by deaf persons that teachers should insist upon good utterance; for, if pupils are able to use the vocal organs and speak, they may also in most cases learn to control their voices and combine with simple utterance the desirable qualities of tonality, accent, and rhythm.

## NORMAL TRAINING SCHOOLS

The maintenance of an efficient teaching staff is a serious difficulty in all of the schools for the deaf, for the State of New York has neither training schools nor normal classes for the instruction of teachers who propose to devote themselves to this work. Common schools receive their teachers from normal colleges and other general training schools and, as a rule, they have all had fair preparation for their work. The schools for the deaf children require teaching ability of higher order than those for ordinary pupils, and the teachers must devote themselves to their work with intense earnestness of purpose and enthusiasm. The men and women who are employed in the instruction of the deaf are an efficient body of instructors, and when vacancies occur in the teaching staff of these schools it is difficult to obtain men and women qualified to fill the vacancies. The normal schools are not prepared to train teachers for the deaf, and the schools must depend upon other sources for competent substitutes to continue the work of the teachers who resign, and therefore New York should establish at once training schools to supply competent teachers. The Rochester School and one of the New York city institutions for the deaf could very well open training departments, as their facilities are ample and the locations satisfactory. Connected with these schools are teachers in every way competent to manage a normal department with an extended course in

speech and other subjects, which will meet every need of teachers who propose to devote themselves to the purely oral method in the instruction of the deaf.

#### TEACHERS' CONVENTIONS DESIRABLE

The benefits of teachers' conventions are well known, but the teachers in the New York schools for the deaf have had few opportunities to attend such meetings within the State, or observe demonstrations of actual teaching in the classrooms and schools other than their own, or to confer with each other upon methods and the problems which arise during the school season.

The superintendents have met at various times in conference and have done something toward standardizing the educational work of the institutions, and last spring the principals and teachers of the five institutions and the day school in New York city met in conference at the New York Institution. A similar conference should be held yearly and the program include a presentation of methods of class-room instruction by means of demonstration classes, together with papers and open discussions. The home training and general equipment at the particular institution where the conference is held should also be observed. In this way the teachers and officers will be able to take back to their own schools ideas which have proven useful elsewhere. The schools in western and northern New York could hold their own conferences, but an annual State conference at the close of the spring session would bring all the teachers together. That they would be glad of opportunities to widen their perspective was made apparent last summer at the week's conference of the American Association to Promote the Teaching of Speech to the Deaf, when many of the members from New York State who attended that conference expressed the wish that a similar meeting could be held yearly. The demonstration classes from the Rhode Island Institute and the Lexington Avenue School of New York city were interesting features of that conference and showed conclu-

sively that the deaf pupil through the use of the pure oral method may have a broad intellectual development. It was noticeable that the teaching accessories, particularly those used in the classes of the younger pupils, were many and varied, and that the teachers were well educated, thoroughly trained in speech methods, and versed in the special studies they conducted, and that all insisted upon the value and absolute need of a definite course of study, which was one of the many subjects discussed. Inspection reports on the schools in New York State have repeatedly recommended this, for it has been observed that schools which have prepared and actually follow a definite program are most successful, and that when it is supplemented by detailed outlines, which insure well articulated and evenly distributed work, the best results are shown. At a State conference similar suggestions and observations to those made at Providence would occur, and an earnest attempt could be made to find a solution for special needs and difficulties. Thus the standard of the schools in New York State would be raised and their work become more effective.

The general equipment of these schools and the training and care given the children are very satisfactory, reflecting credit upon the trustees, administrative officers, and teachers in charge. The "home spirit" is developed in all the pupils and the industrial training encourages initiative and independence and prevents the formation of the "institution outlook" upon life, which results from treating a group of children as a body and not as individuals. The teachers aim to graduate thoughtful, ambitious, self-reliant students, who during the years at school have been stimulated by the examples of success and who have not been repressed or checked in the proper expression of character.

Dr. Chas. R. Ely has presented his resignation of the Principalship of the Maryland State School, Frederick City, Md., to the Board of Visitors. This action was taken in order to accept a call from Gallaudet College of Washington, D. C., where he will take up his former position as Professor of Natural Science.

## THE VOICES OF THE DEAF\*

## The Strobilion: Control of Pitch by Means of Sight

BY E. W. SCRIPTURE, PH. D., M. D., COLUMBIA UNIVERSITY

**T**HE strobilion is an apparatus for teaching control of the pitch of the voice by means of sight. A preceding article (*THE VOLTA REVIEW*, April, 1913) pointed out the need of some means of

overcoming the monotony of the speech of the deaf and described an apparatus for doing this by comparing the vibrations of two flames. The purpose of the strobilion is the same, but an entirely different method is employed.

\*This is the second of a series of articles by Dr. Scripture, describing some new methods of improving the voices of the deaf.

The disc shown in Fig. 1 consists of 15 rings of alternating white and black



FIG. 1. THE STROBILION

spaces. The inner ring has eight white spaces, the next has nine, etc. The entire series is 8, 9, 10,  $10\frac{2}{3}$ , 12,  $13\frac{1}{3}$ , 15, 16, 18, 20,  $21\frac{1}{3}$ , 24,  $26\frac{2}{3}$ , 30, 32. These numbers correspond to the relations of vibrations in the diatonic scale. Thus, if "do" is a note having eight vibrations a second, "re" will have nine, "mi" will have ten, etc.

In front of the disc there is a scale marked with the syllables "do, re, mi," etc., opposite the corresponding rings.

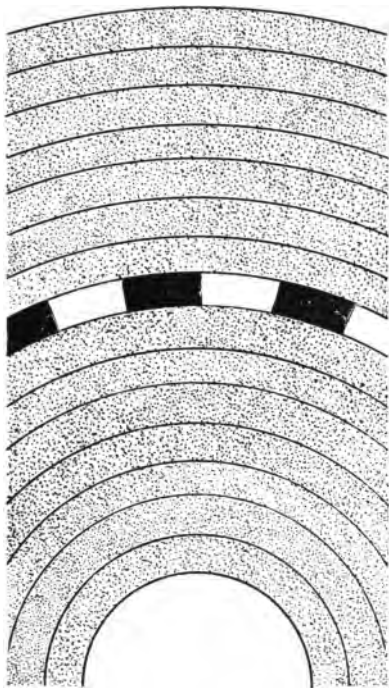


FIG. 2. THE STROBILION DISC, ILLUMINATED BY AN INTERMITTENT FLAME, WHOSE FLASHES MAKE THE MIDDLE RING APPEAR TO STAND STILL

The disc is fixed on the axle of an electric motor, whose speed can be regulated by a rheostat. When the motor is set going, the disc revolves and its entire surface appears an even gray.

The disc is illuminated by a small flame from a flame box supplied by acetylene. The construction of this flame box was described in the April number of the REVIEW. The membrane in the box must be of thin mica in this apparatus.

When a tone is sung into the mouth-piece of the flame box, the flame vibration produces a series of flashes of light. The disc is illuminated as many times a second as there are vibrations in the tone sung. Between the illuminations there is darkness. If the white spaces of any ring of the disc are passing the flame at a rate equal to the number of vibrations of the tone, that ring will split up into a series of white and black spaces that appear to stand still (Fig. 2). All of the other rings will remain gray. The reason for this is that the eye sees the disc only by flashes. At one flash of light the white disc of a certain ring is seen, for example, at the top. During the darkness before the next flash it moves forward. If the next flash occurs at the moment the next white space has moved to the top, the eye perceives no movement, and the observer sees the second white space where the first was. At the next flash the third white space has moved to the top, and so on. Consequently the observer sees a white space at the top and other white and black spaces around the ring just the same as if the ring actually stood still. This will be true only of one ring, namely, the one whose white spaces move exactly in agreement with the flashes.

The rheostat, with the motor, is arranged to give great changes of speed. If the disc is made to revolve 16 times a second, the number of spaces passing the flame in a second will be  $16 \times 8$ , which equals 128 in the inner ring, 144 in the second ring, and so on, up to 512 in the outer ring. If the speed of the motor is increased to 20, there will be 160 in the inner ring, 180 in the second, and so on. The tonic "do" can thus be placed at any point on the musical scale for the first ring and the other notes will have their proper numbers of vibrations.

The scale of two octaves can thus be adjusted to any voice, from the lowest bass to the shrillest treble.

There is no need for any sharps or flats to change the scale; that is done by changing the speed. For example, a song written in the key of *c* can at once be

transposed to the key of *d* (two sharps) by speeding the motor 25 per cent faster.

The disc can be adjusted to any given note. When a pitch pipe of  $c = 256$  is blown into the tube (it is best to remove the mouthpiece), the speed of the motor can be changed till the inner ring remains still. It is then known that 256 spaces per second are passing on the inner ring; the speed of the motor must therefore be 32 revolutions per second; the numbers of spaces for the other rings are readily calculated.

If a tone from any musical instrument is brought into the tube, its pitch can be told by noting which ring stands still. The same is true of any tone that may be sung. The strobilion can thus be used to give the pitch of any tone that reaches it in a way to make the flame vibrate.

What happens when the number of vibrations of the tone reaching the flame is not exactly identical with the number of spaces passing in any ring? Suppose the disc to be revolving so that 80 spaces of the inner ring pass in one second and that the tone has 79 vibrations a second. Between two flashes the white space will have moved not only to the position of the next space, but also  $1/80$ th further. The result is that the white space, instead of being still, appears to creep slowly forward by  $1/80$ th of the distance between corresponding points on the two spaces. Thus, if the vibrations of the tone are one less per second in number than the number of spaces per second,

the ring will appear to move forward by one space per second. It will be readily understood that for a difference of two vibrations it will move two spaces per second, and so on. When the tone has fewer vibrations than the number of passing spaces, the ring appears to move forward; when it has more, the ring moves backward. It is thus possible to tell, with great accuracy, just how many vibrations lower or higher the tone is than the ring that stands still.

The deaf pupil is told to sing into the mouthpiece. At first he will sing in such a faint or tight voice that nothing happens, or in such a bellow that he blows the flame out. The first lesson may be profitably used to teach him to regulate the power of his voice. Indeed, one of the most valuable uses of the strobilion is to teach proper control of the breath and proper relaxation of the muscles of the larynx and throat in producing voice.

Then he is made to see that a person can make a certain ring stand still by singing into the mouthpiece. When he makes the attempt he sees that the wrong ring stands still. If the disc has to be speeded up to match a shrill falsetto tone, he readily understands that he must sing lower. An important result thus obtained is that the pupil learns the correct register in which to use his voice.

The next step is to sing a tone so that a certain ring remains absolutely still (Fig. 3-A). The pupil feels around with his voice; he sees sometimes one ring

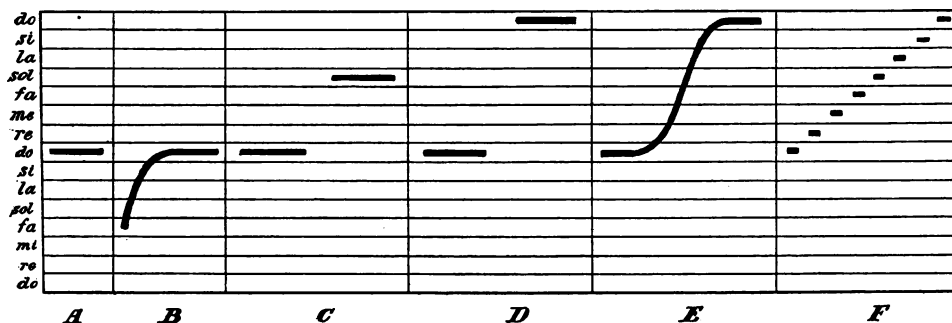


FIG. 3. STROBILION EXERCISES INDICATED ON THE STROBILION STAFF

- A. A constant tone, sung on middle "do."
- B. Incorrect beginning for "do."
- C. An interval of a fifth.

- D. An interval of an octave.
- E. A slide, or portamento, over an octave.
- F. The scale sung staccato.

stand still, sometimes another. Finally he hits the desired one. This he repeats over and over till he learns to strike it rightly each time.

A common fault with the pupil is that he starts too low and raises his voice; he is made to notice that he travels over lower rings before reaching the correct one (Fig. 3-B). By watching his teacher he gets the idea that the correct ring must appear instantly without any initial slide.

The next step is to teach the musical intervals. The teacher points to the ring "do"; the pupil must sing the correct note. Then he points to "sol"; the pupil must raise his voice instantly to a note that makes "sol" without passing over any of the other notes (Fig. 3-C). In this way all the intervals of the octave are taught.

The slide, or portamento, is easily taught. After singing "do," the pupil is to pass to "sol" or "do" above by making all the intervening rings flash out as his voice is raised (Fig. 3-E). It is much easier to pass from one note to

another by a slide than to jump over the interval clearly. The complete scale (Fig. 3-F), with all of its intervals correct, is ultimately acquired.

It is evident that a whole course of instruction in singing can be carried out not only for the deaf, but also for the hearing person. In fact, the apparatus is in use for singers who have difficulty in accurately pitching their voices or in getting intervals.

Our purpose, however, is not to make singers of the deaf, but to give them such a control of their vocal cords that they can modulate their tones in speech. Once the pupil can control his voice so as to make a few clear tones and to introduce slides, he can be taught to speak melodiously after the manner indicated in the April REVIEW.

Although the strobilion is somewhat complicated in theory, it is not much more difficult to use than the double-flame trainer previously described. It has the inestimable advantage of the greatest accuracy in controlling the voice and of almost innumerable applications.

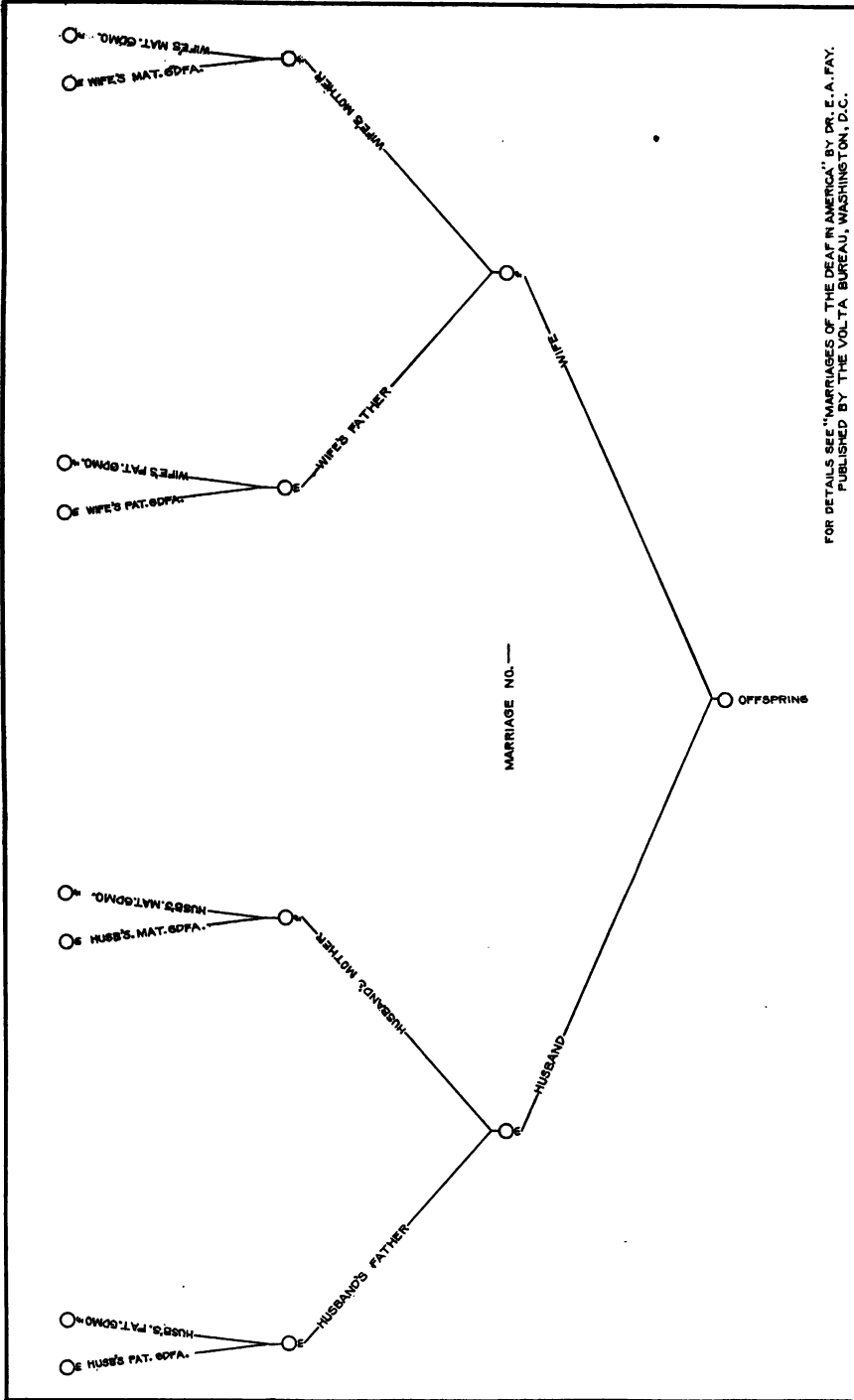
## GRAPHICAL STUDIES OF MARRIAGES OF THE DEAF

THE Volta Bureau possesses a card catalogue relating to 4,471 marriages of deaf-mutes, reported in Dr. E. A. Fay's work entitled "Marriages of the Deaf in America," published by the Volta Bureau. Each card is illustrated by a graphical diagram prepared by Dr. Alexander Graham Bell upon the plan shown in THE VOLTA REVIEW, Vol. XIV, page 63, exhibiting at a glance the number of brothers and sisters and children of the partners in marriage, and whether they were deaf or not.

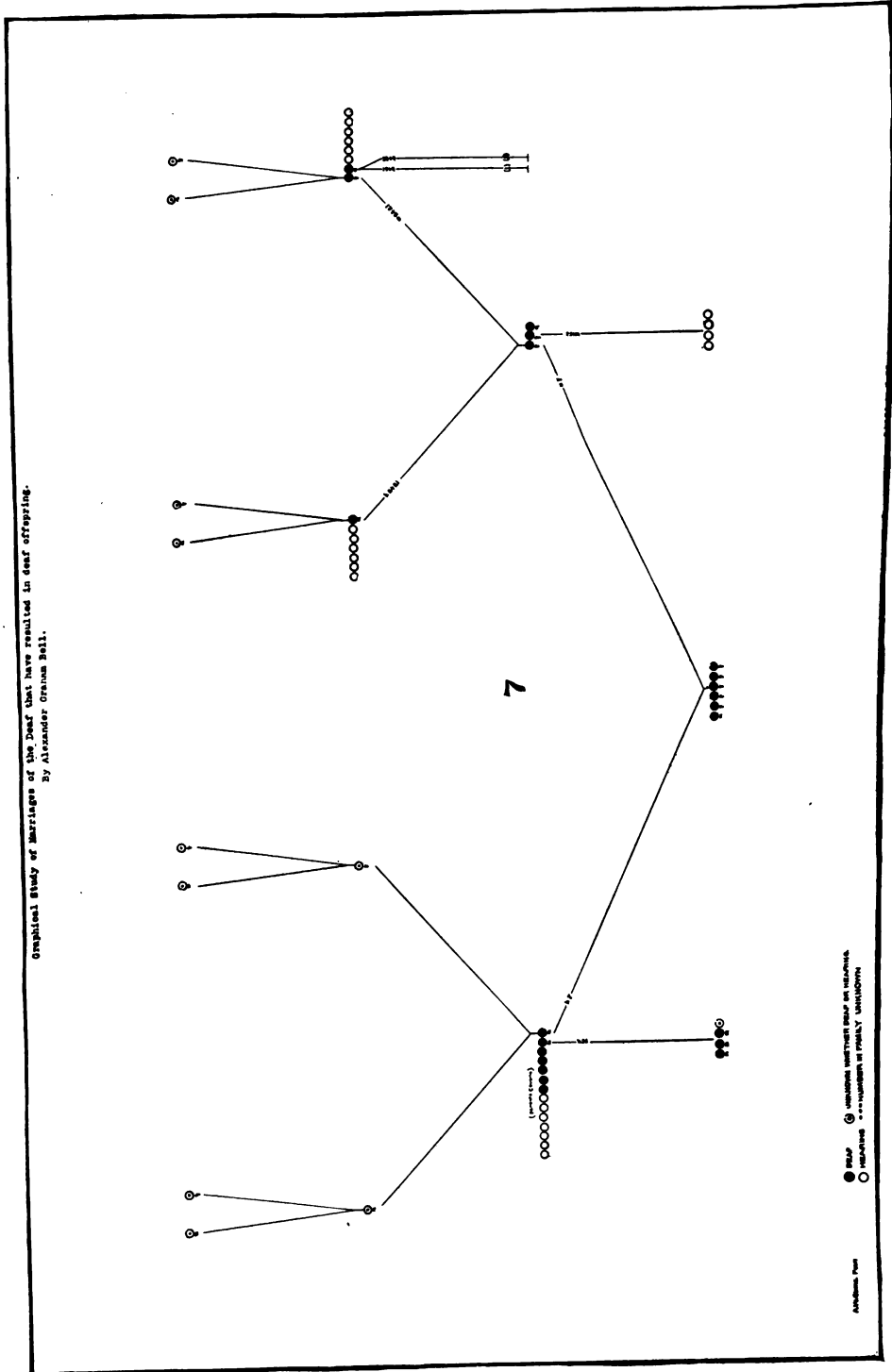
An analysis of these 4,471 marriages appeared in THE VOLTA REVIEW, Vol. XIV, pp. 126-127. No information concerning offspring was obtained in regard to 974 of the marriages; and in 419 cases the marriages took place within a year of the date of report, so that offspring had not then appeared. Eliminating the above, the table deals with 3,078 marriages of a year's standing or longer; 434, or 14.1 per cent, were childless, so that the children recorded were the produce of 2,644 marriages. Omitting two of these on account of incomplete returns, the table shows that 2,342 of the fertile marriages resulted in hearing offspring alone, and that in 300 cases deaf offspring were also produced.

Dr. Bell has now presented to the Volta Bureau a graphical study of the 300 marriages which resulted in deaf offspring, showing the ancestry of the husbands and wives, the number of children produced, and how many were deaf and how many could hear. The brothers and sisters of the ancestors are also given, showing how many were deaf and how many could hear; and each chart collates the information scattered through Dr. Fay's book relating to deaf relatives in collateral lines of descent. The marriages are designated by the same numbers used by Dr. Fay in his published work. Additional details, preserved in the confidential archives of the Volta Bureau, are accessible to *bona fide* investigators upon request.

The whole collection of graphical charts will be published ultimately in book form by the Volta Bureau, with an introduction by Dr. Bell. In the meantime we shall present to our readers a selection of eighty charts showing families in which deaf-mutes have appeared during three or more successive generations. Eight of these charts are given in the present issue of THE REVIEW, and each succeeding number will contain eight, until the series is completed.—EDITOR.

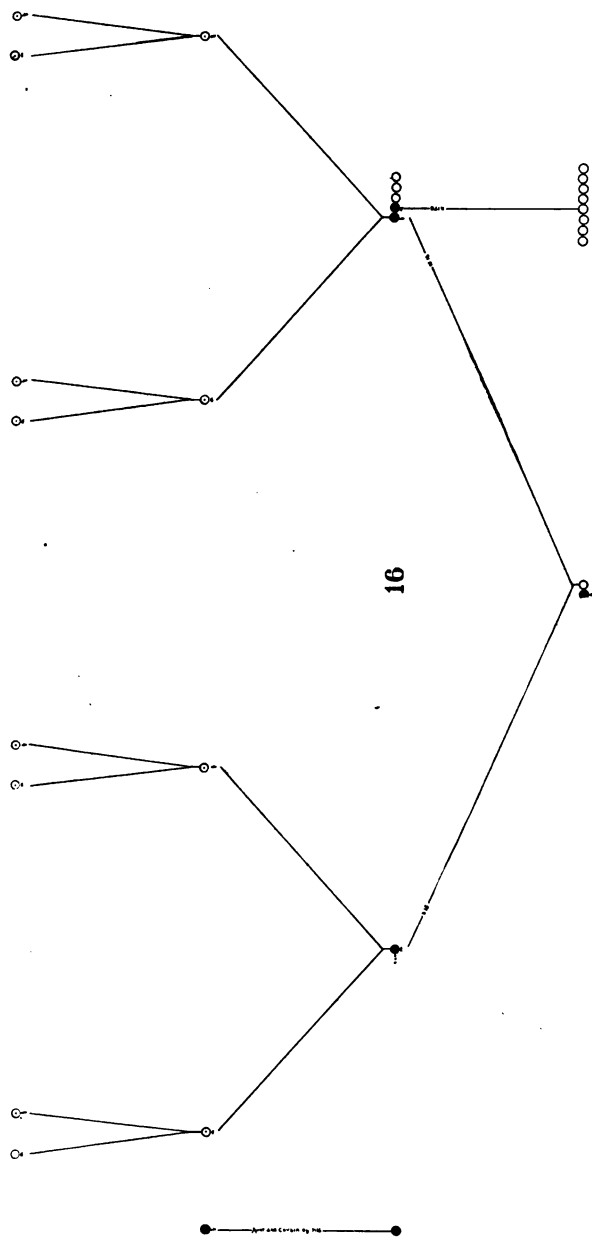


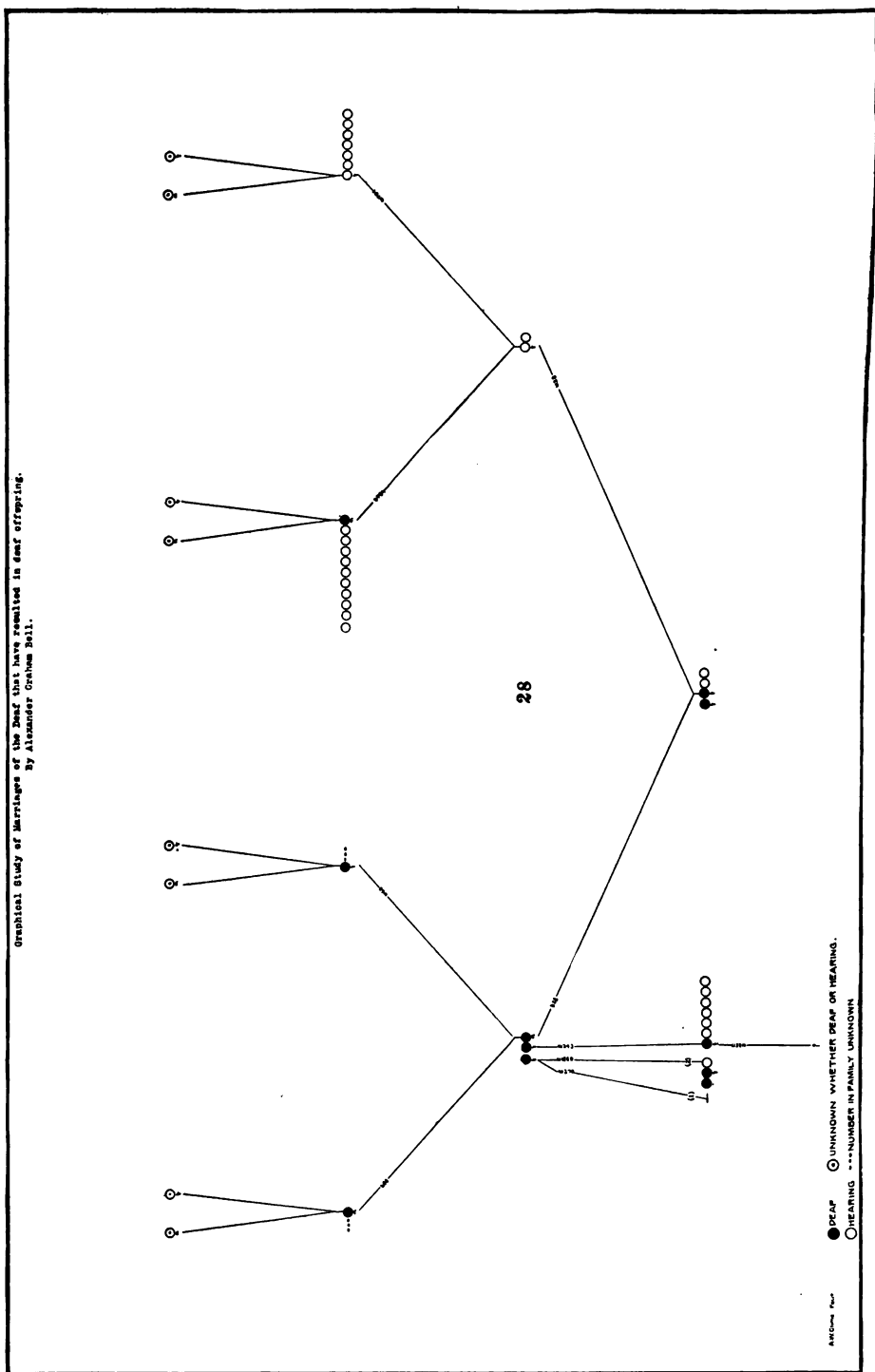
KEY TO THE GRAPHICAL CHARTS





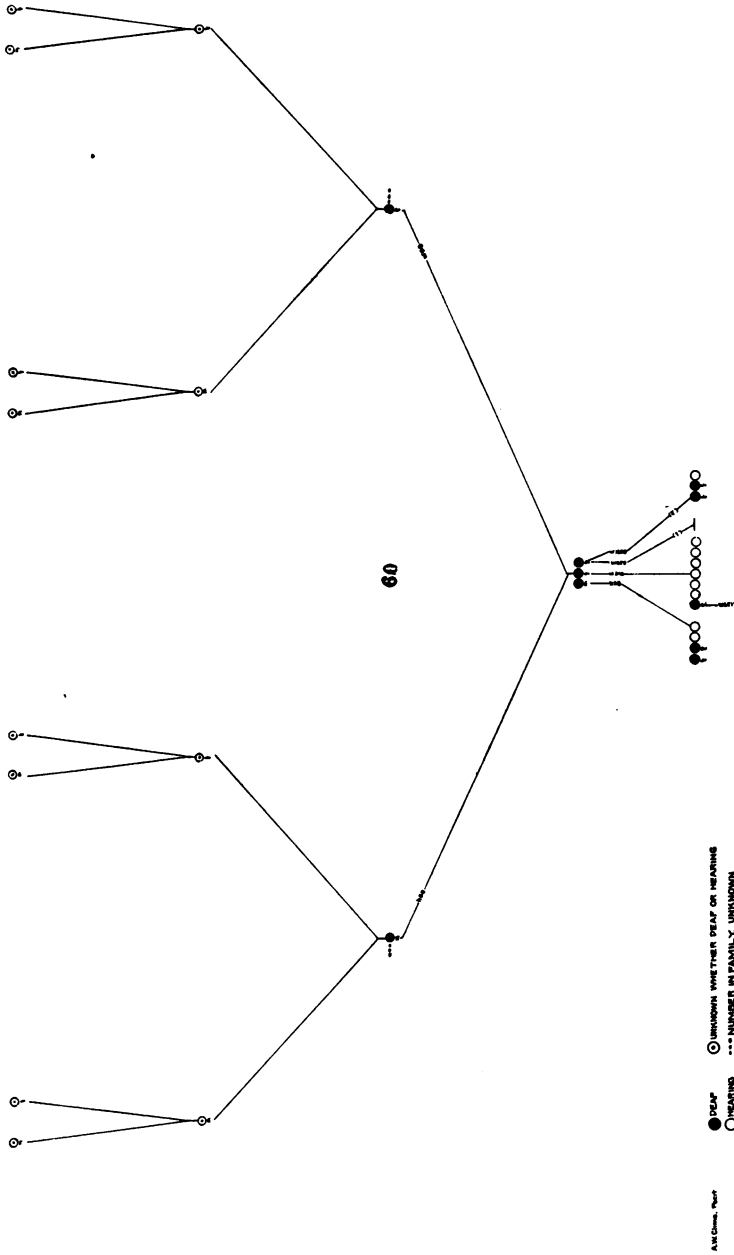
Graphical Study of Marriages of the Deaf that have resulted in deaf offspring.  
By Alexander Graham Bell.



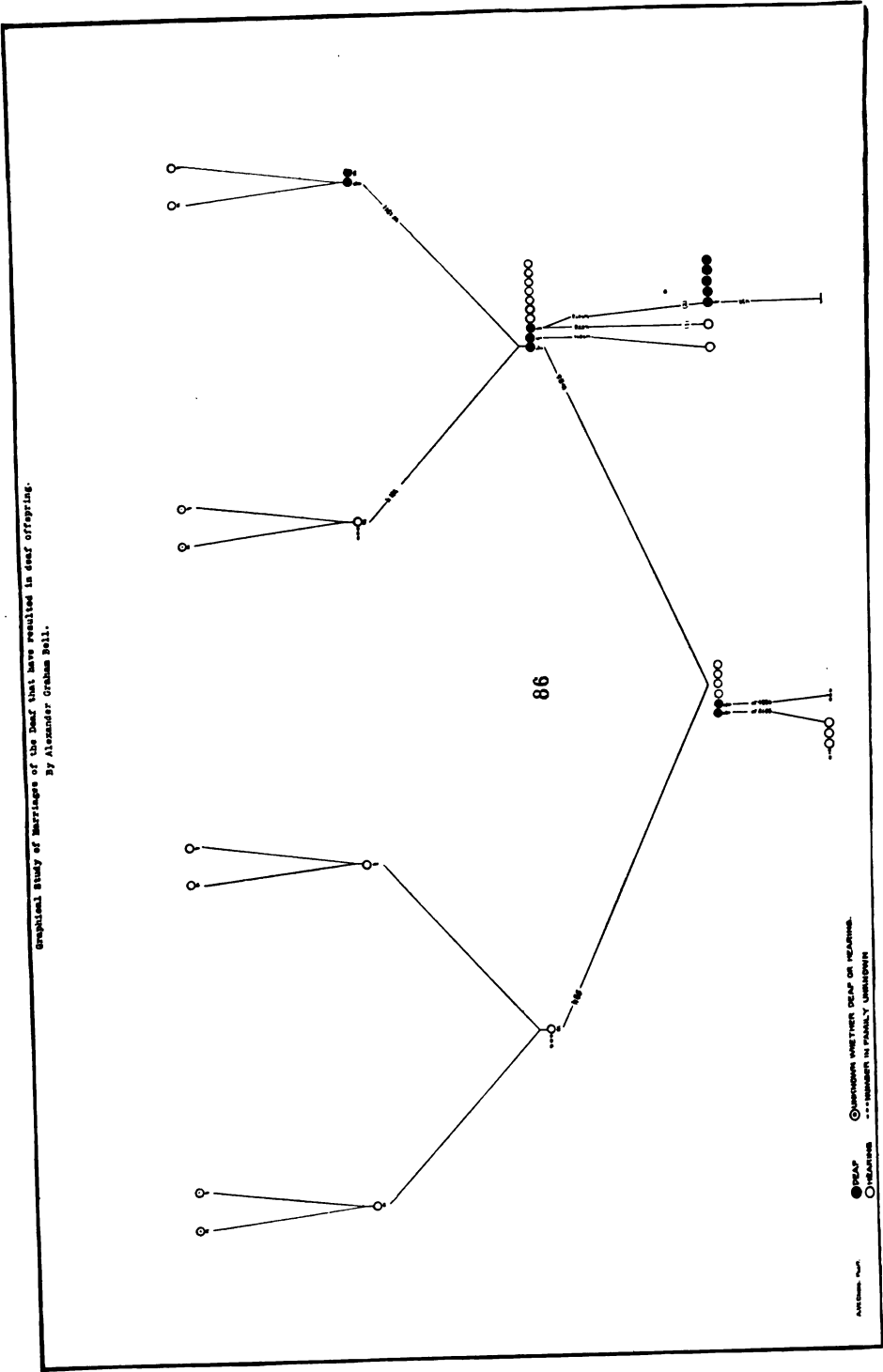


MARRIAGE NO. 28. REPORTED IN "MARRIAGES OF THE DEAF IN AMERICA," BY DR. E. A. FAY. PUBLISHED BY THE VOLTA BUREAU, WASHINGTON, D. C.

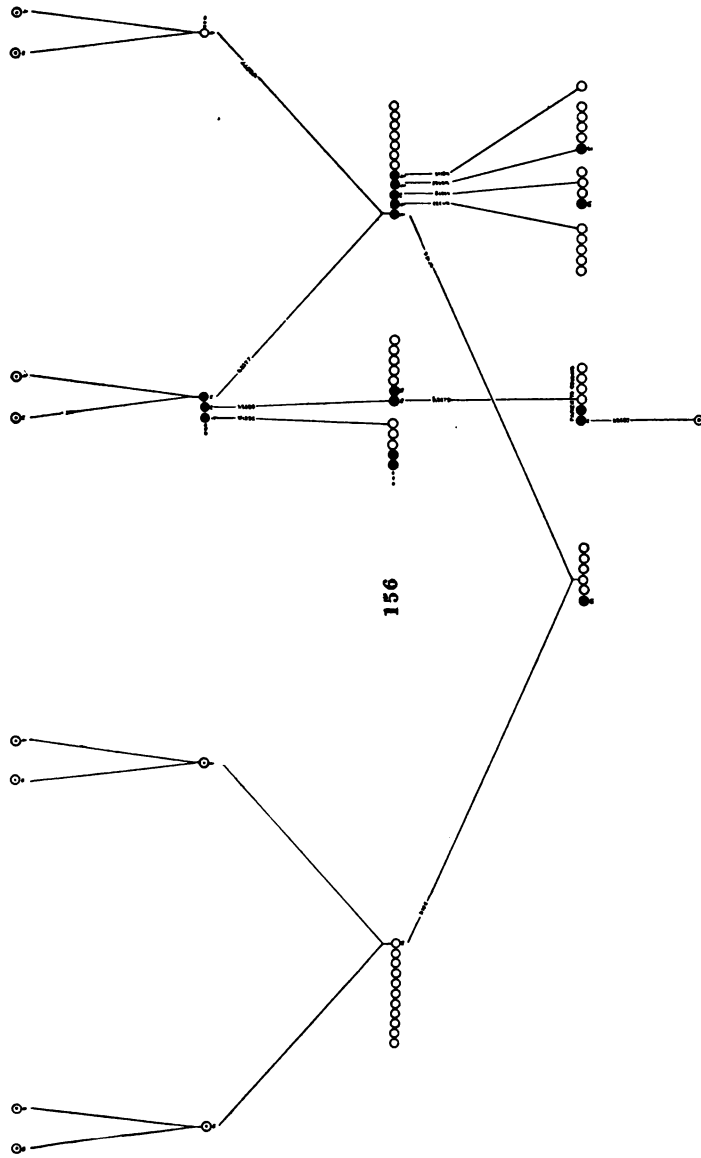
Graphical Study of Marriages of the Deaf that have resulted in deaf offspring  
By Alexander Graham Bell



MARRIAGE NO. 60. REPORTED IN "MARRIAGES OF THE DEAF IN AMERICA," BY DR. E. A. FAY. PUBLISHED BY THE VOLTA BUREAU, WASHINGTON, D. C.

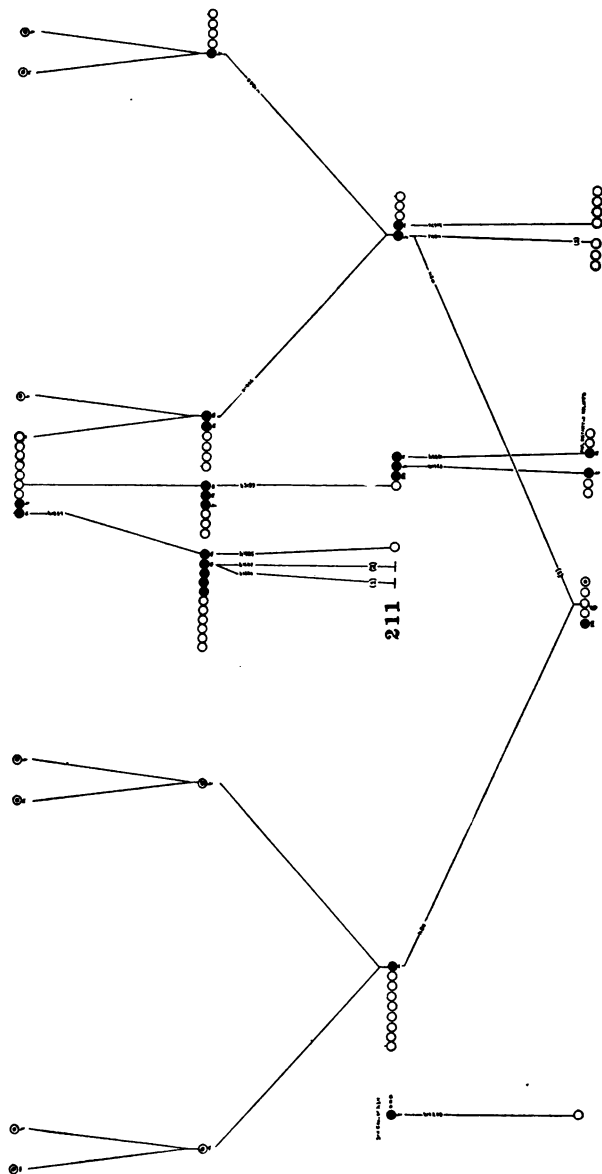


Graphical Study of Marriages of the Deaf that have resulted in deaf offspring  
By Alexander Graham Bell.



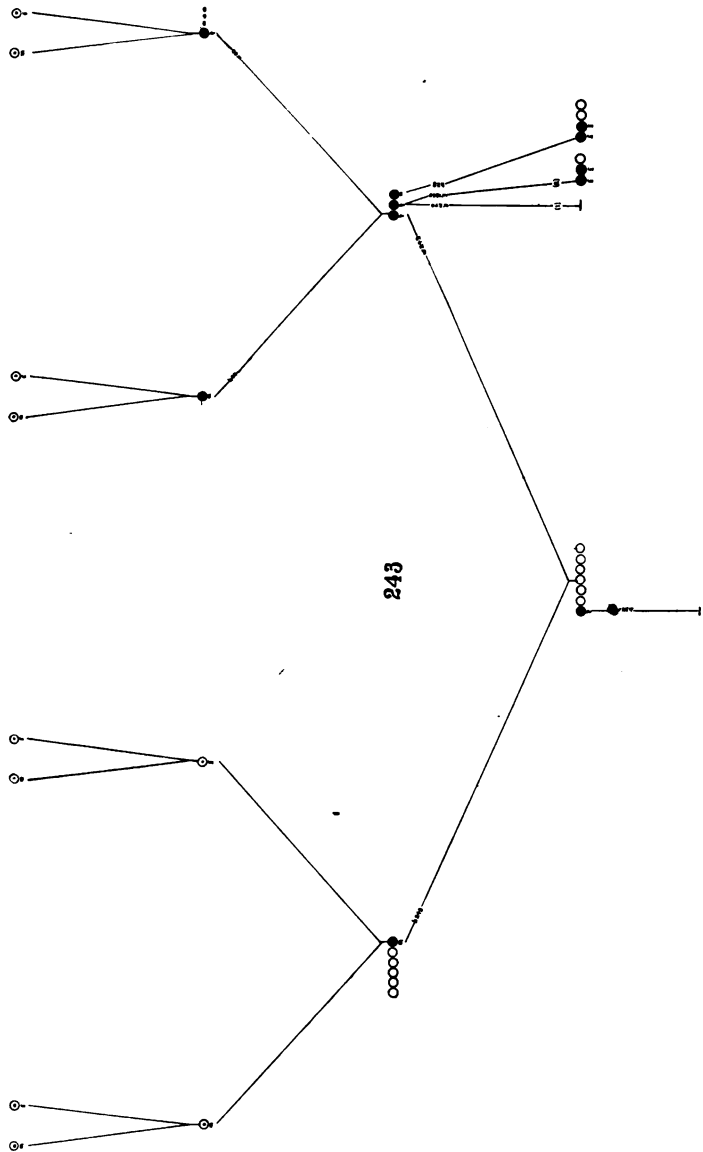
As Desc. Pair      ● DEAF      ◐ UNKNOWN WHETHER DEAF OR HEARING  
                         ○ HEARING      \*\*\* NUMBER IN FAMILY UNKNOWN

Graphical Study of Marriages of the Deaf that have resulted in deaf offspring.  
By Alexander Graham Bell.



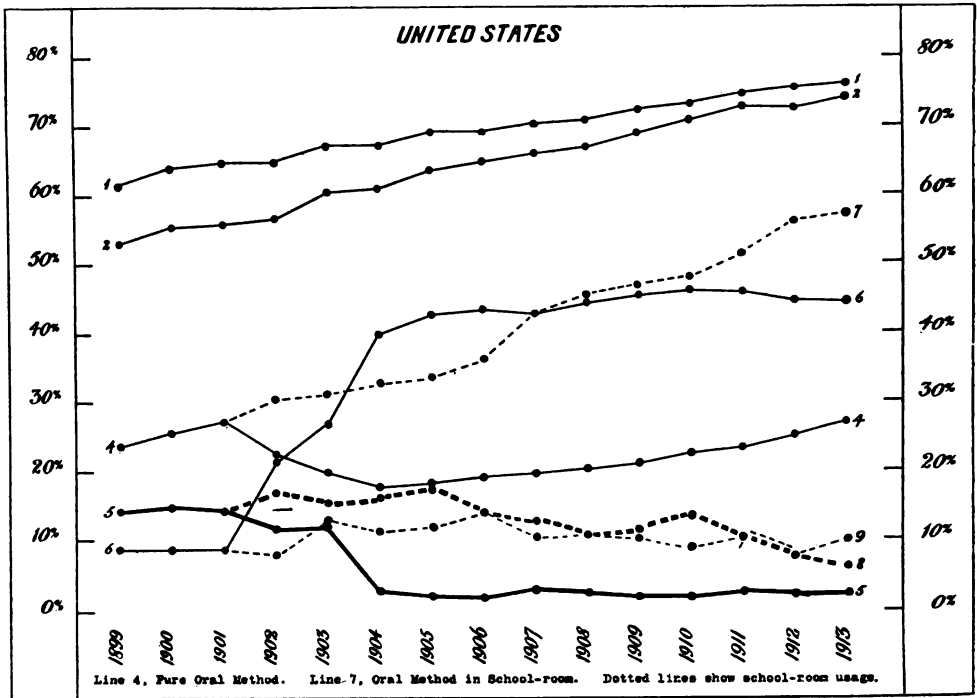
ALLIANCE PAIR  
● DEAF ○ UNKNOWN WHETHER DEAF OR HEARING.  
○ HEARING --- NUMBER IN FAMILY UNKNOWN.

Graphical Study of Marriages of the Deaf that have resulted in deaf offspring.  
By Alexander Graham Bell



● DEAF  
○ HEARING  
○ UNKNOWN WHETHER DEAF OR HEARING  
--- NUMBER IN FAMILY UNKNOWN

MARRIAGE NO. 243. REPORTED IN "MARRIAGES OF THE DEAF IN AMERICA," BY DR. E. A. FAY. PUBLISHED BY THE VOLTA BUREAU, WASHINGTON, D. C.



NUMBER OF PUPILS.

Year	Taught Speech	Speech Used	Not Used*	Taught by Speech			Schoolroom Usage		
				S	SS†	SSS‡	S	SS†	SSS‡
	1	2	3	4	5	6	7	8	9
1899	6460	5584	535	2496	1549	972			
1900	6884	5969	582	2757	1643	995			
1901	7131	6167	621	3020	1611	1009			
1902	7164	6276	712	2506	1323	2412	3400	1903	938
1903	7561	6793	645	2331	1364	3098	3552	1754	1487
1904	7578	6858	720	2050	305	4503	3715	1854	1289
1905	7994	7373	621	2153	278	4942	3911	2038	1424
1906	8145	7679	466	2279	252	5148	4274	1682	1723
1907	8320	7852	468	2359	393	5100	5067	1521	1264
1908	8451	8010	441	2412	304	5294	5389	1304	1317
1909	8872	8496	376	2631	279	5586	5758	1458	1280
1910	9132	8884	248	2830	290	5764	5998	1733	1153
1911	9402	9180	222	2976	408	5796	6514	1354	1312
1912	9588	9227	361	3203	320	5704	7172	1003	1052
1913	10009	9700	309	3545	328	5827	7496	884	1320

PERCENTAGE OF PUPILS.

1899	61.4	53.1	5.1	23.7	14.7	9.2			
1900	64.0	55.5	5.4	25.7	15.3	9.2			
1901	64.7	56.0	5.6	27.4	14.6	9.2			
1902	64.7	56.7	6.4	22.6	12.0	21.8	30.6	17.2	8.5
1903	67.2	60.3	5.8	20.0	12.1	27.4	31.5	15.6	13.2
1904	67.3	60.9	6.4	18.2	2.7	40.0	33.0	16.5	11.4
1905	69.1	63.7	5.4	18.6	2.4	42.7	33.8	17.6	12.3
1906	69.0	65.0	4.0	19.3	2.1	43.6	36.2	14.2	14.6
1907	70.1	66.1	4.0	19.9	3.3	42.9	42.7	12.8	10.6
1908	70.9	67.2	3.7	20.2	2.6	44.4	45.2	11.0	11.0
1909	72.2	69.1	3.1	21.4	2.3	45.4	46.8	11.9	10.4
1910	73.1	71.1	2.0	22.6	2.3	46.2	48.0	13.9	9.2
1911	74.5	72.7	1.8	23.6	3.2	45.9	51.6	10.7	10.4
1912	75.4	72.5	2.9	25.2	2.5	44.8	56.4	7.9	8.2
1913	76.2	73.9	2.3	27.0	2.5	44.4	57.1	6.7	10.1

\* Column 3, "not used," includes all cases where it is not known that speech is used as a means of instruction. † Columns 5 and 8 include unclassified cases taught by SS. ‡ Columns 6 and 9 include unclassified cases taught by SSS.

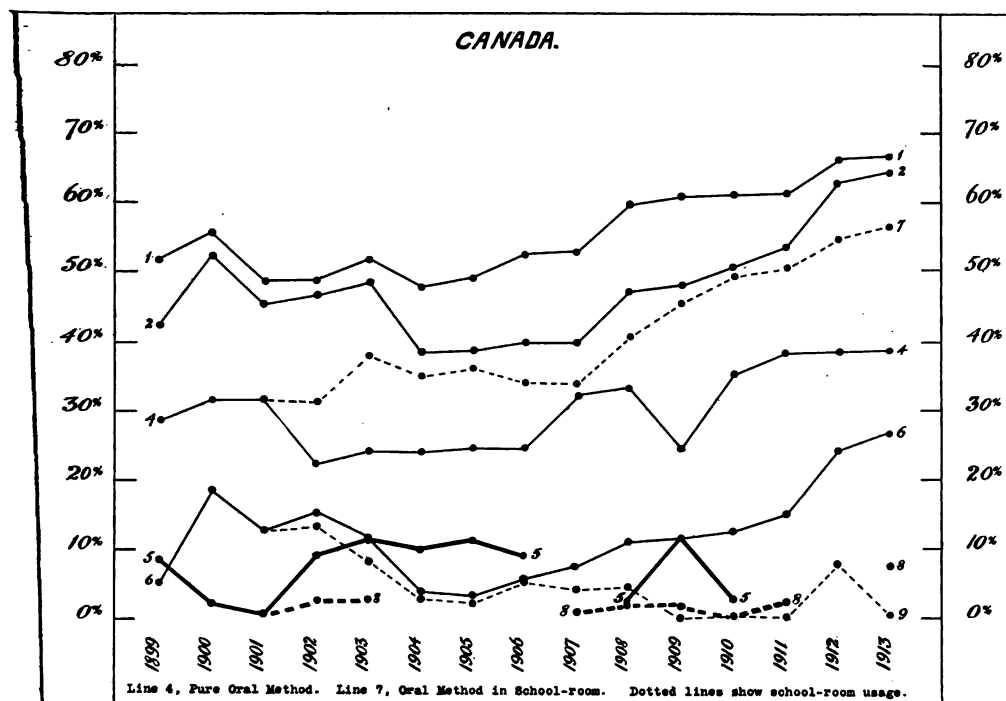
The figures on which the diagrams are based are given in each case immediately under them and the columns are numbered to correspond to the curves upon the diagrams.

1. Total taught Speech. (Summation of all cases.)

2. Speech used as a means of instruction (with or without Spelling or Sign-language).

3. Taught Speech, but Speech not used as a means of instruction. C n wn on dia m.





NUMBER OF PUPILS.

Year	Taught Speech	Speech Used	Not Used*	Taught by Speech			Schoolroom Usage		
				S	SS	SSS	S	SS	SSS
	1	2	3	4	5	6	7	8	9
1899	404	330	14	225	64	41			
1900	434	411	23	247	20	144			
1901	384	361	23	251	8	102			
1902	393	377	16	180	75	122	250	20	107
1903	387	367	20	183	93	91	283	21	63
1904	354	282	72	179	75	28	259	—	23
1905	346	273	73	174	76	23	255	—	18
1906	408	296	112	183	69	41	254	—	42
1907	421	301	120	246	—	55	259	8	34
1908	487	386	101	271	22	93	333	13	40
1909	483	381	102	193	94	94	360	16	5
1910	491	412	79	286	23	103	395	10	7
1911	517	451	66	322	—	129	425	22	4
1912	549	521	28	317	—	204	455	—	66
1913	558	542	16	321	—	221	475	62	5

PERCENTAGE OF PUPILS.

1899	52.1	42.6	1.8	29.0	8.3	5.3			
1900	55.4	52.5	2.9	31.5	2.6	18.4			
1901	48.8	45.9	2.9	31.9	1.0	13.0			
1902	49.2	47.2	2.0	22.6	9.4	15.3	31.4	2.6	13.4
1903	51.8	49.1	2.7	24.5	12.4	12.2	37.8	2.8	8.4
1904	48.2	38.4	9.8	24.4	10.2	3.8	35.3	—	3.1
1905	49.5	39.1	10.4	24.9	10.9	3.3	36.5	—	2.6
1906	55.4	40.2	15.2	24.8	9.4	6.0	34.5	—	5.7
1907	55.7	39.8	15.9	32.5	—	7.3	34.2	1.1	4.5
1908	60.0	47.5	12.5	33.4	2.7	11.4	41.0	1.6	4.9
1909	60.8	48.0	12.8	24.3	11.9	11.8	45.4	2.0	0.6
1910	60.9	51.1	9.8	35.5	2.9	12.8	49.0	1.2	0.8
1911	61.5	53.7	7.8	38.3	—	15.4	50.6	2.6	0.5
1912	66.3	62.9	3.4	38.3	—	24.6	55.0	—	7.9
1913	66.6	64.7	1.9	38.3	—	26.4	56.7	7.4	0.6

4. Taught by Speech (no Spelling, no Sign-language).

5. Taught by Speech and Spelling (no Sign-language).

6. Taught by Speech, Spelling, and Sign-language.

SCHOOLROOM USAGE. (Without reference to outside instruction.)

7. Taught by Speech (no Spelling, no Sign-language).

8. Taught by Speech and Spelling (no Sign-language).

9. Taught by Speech, Spelling, and Sign-language.

**TABLE I.—SCHOOLS FOR THE DEAF IN THE UNITED STATES**  
Arranged alphabetically according to location

State or Territory	Town	Street or District	Official Name of School	Chief Executive Officer
Alabama.....	Talladega.....	.....	Alabama School for the Deaf.....	Joseph H. Johnson, M. A., LL. D.
Arizona.....	Tucson.....	.....	School for the Deaf, University of Arizona.....	Henry C. White, B. A.
Arkansas.....	Little Rock.....	.....	Arkansas Deaf-Mute Institute.....	Isaac B. Gardner.
California.....	Berkeley.....	.....	California Institution for the Deaf and the Blind.....	L. E. Milligan, M. A.
do.....	Los Angeles.....	.....	Los Angeles Day-School for the Deaf.....	Mary E. Bennett.
do.....	Oakland.....	.....	Oakland Oral Public School for the Deaf.....	Emma M. Firth.
do.....	do.....	Seventeenth and West Sts.....	St. Joseph's School for the Deaf.....	Sister M. Louis.
do.....	Sacramento.....	4002 Telegraph Ave.....	Sacramento Day-School for the Deaf.....	Alice Jenkins.
do.....	San Francisco.....	Twenty-seventh and G Sts.....	San Francisco Day-School for the Deaf.....	Mrs. Jennie B. Holden.
Colorado.....	Col. Springs.....	Golden Gate Av., nr. Pierce St.....	Colorado School for the Deaf and the Blind.....	W. K. Argo, M. A., LL. D.
Connecticut.....	Hartford.....	.....	American School for the Deaf.....	Job Williams, M. A., L. H. D.
do.....	Mystic.....	.....	Mystic Oral School for the Deaf.....	Tobias Brill.
Dist. Columbia.....	Washington.....	Kendall Green.....	Columbia Institution for the Deaf.....	Percival Hall, M. A.
do.....	do.....	do.....	Comprising { Kendall School for the Deaf.....	Lyman Stead, M. A.
Florida.....	St. Augustine.....	.....	Florida School for the Deaf and the Blind.....	Percival Hall, M. A.
Georgia.....	Atlanta.....	Ashby Street.....	Atlanta Day School for the Deaf.....	A. H. Walker, B. A.
do.....	Cave Spring.....	.....	Georgia School for the Deaf.....	Mrs. Sara S. Temple.
do.....	Macon.....	.....	Miss Arbaugh's School for Deaf Children.....	Wesley O. Connor.
Idaho.....	Gooding.....	.....	Idaho State School for the Deaf and the Blind.....	Laura L. Arbaugh.
Illinois.....	Chicago.....	.....	Hurr Public Day-School for the Deaf.....	William E. Taylor, M. A.
do.....	do.....	Ashland and Wabansia Sts.....	Bernard Moos Public Day-School for the Deaf.....	Miss Mary McCowen, B. D.
do.....	do.....	Cal. Ave., near Wabansia St.....	Ogden Public Day-School for the Deaf.....	do.....
do.....	do.....	Chestnut and N. State Sts.....	Dore Public Day-School for the Deaf.....	do.....
do.....	do.....	Harrison, near Halstead St.....	Kozminski Public Day-School for the Deaf.....	do.....
do.....	do.....	Ingleside Ave. and 54th St.....	Jirka Public Day-School for the Deaf.....	do.....
do.....	do.....	17th bet. Loomis and Lafin Sts.....	Parker Practice Public Day-School for the Deaf.....	do.....
do.....	do.....	67th St. and Stewart Ave.....	Holden Public Day-School for the Deaf.....	do.....
do.....	do.....	31st and Loomis Sts.....	Hammond Public Day-School for the Deaf.....	do.....
do.....	do.....	21st Place and California Ave.....	Ephpheta School for the Deaf.....	Annie M. Larkin.
do.....	do.....	Belmont and 40th Aves.....	McCowen Home for Young Deaf Children.....	Mrs. Cornelia B. Eggers.
do.....	do.....	6550 Yale & 6756 Normal Aves.....	Illinois School for the Deaf.....	Charles P. Gillett.
do.....	Jacksonville.....	.....	Rock Island Day-School for the Deaf.....	Meta C. Wittig.
do.....	Rock Island.....	7th Ave. and 22d St.....	Indiana State School for the Deaf.....	Richard Otto Johnson.
Indiana.....	Indianapolis.....	.....	Iowa School for the Deaf.....	Henry W. Rothert.
Iowa.....	Council Bluffs.....	.....	Kansas School for the Deaf.....	Cyrus E. White, M. A.
do.....	Olathe.....	.....	Kentucky School for the Deaf.....	Augustus Rogers, M. A.
Kansas.....	Danville.....	.....	Louisiana State School for the Deaf.....	W. S. Holmes.
Kentucky.....	Baton Rouge.....	St. Tammany Parish.....	Deaf-Mute Institute of the Holy Rosary.....	Sister M. Athanasia.
Louisiana.....	Chinchuba.....	79-91 Spring St.....	Maine School for the Deaf.....	Elizabeth R. Taylor.
do.....	Portland.....	851-853 Hollins St.....	F. Knapp's Institute.....	William A. Knapp.
Maine.....	do.....	do.....	do.....	do.....
Maryland.....	Baltimore.....	do.....	do.....	do.....

do.....	do.....	Woodland Ave., Irvington.....	St. Francis Xavier's School for the Deaf.....	Mother M. Michael.
do.....	Frederick City.....	.....	Maryland School for the Deaf and Dumb.....	Charles R. Ely, M. A., Ph. D.
do.....	Kensington.....	.....	Home School for Little Deaf Children.....	Anna C. Reinhardt.
do.....	Parkville.....	.....	Maryland School for the Colored Blind and Deaf.....	John F. Bledsoe, M. A.
Massachusetts	Beverly.....	113 Elliott St.....	New England Industrial School for Deaf-Mutes.....	Louise Upham.
do.....	Boston.....	178 Newbury St.....	Horace Mann School.....	Ella C. Jordan.
do.....	Northampton.....	.....	Clarke School for the Deaf.....	Caroline A. Yale, LL. D., L. H. D.
do.....	Randolph.....	North Main St.....	Boston School for the Deaf.....	M. J. Splaine.
do.....	West Medford.....	93 Woburn St.....	Sarah Fuller Home for Little Deaf Children.....	Eliza L. Clarke.
Michigan	Bay City.....	.....	Bay City Day-School for the Deaf.....	Lydia M. Cooke.
do.....	Calumet.....	.....	Calumet Day-School for the Deaf.....	Katharine Fitzgerald.
do.....	Detroit.....	Abbot St., near 8th.....	Detroit Day-School for the Deaf.....	Gertrude Van Adestine.
do.....	Flint.....	.....	Michigan School for the Deaf.....	Francis D. Clarke, M. A., L. H. D.
do.....	Grand Rapids.....	164 N. Division Ave.....	Grand Rapids Oral School for the Deaf and Hard-of-Hearing.....	Marcia Heath.
do.....	Houghton.....	.....	Houghton Day School for the Deaf.....	Matilda M. McGinty.
do.....	Iron Mountain.....	.....	Iron Mountain Day-School for the Deaf.....	Ida Gleason.
do.....	Ironwood.....	.....	Ironwood Day-School for the Deaf.....	Anna M. Poulsen.
do.....	Jackson.....	.....	Jackson Day-School for the Deaf.....	Mrs. Caroline Shaw.
do.....	Kalamazoo.....	919 W. North St.....	Kalamazoo Day-School for the Deaf.....	Jessie Banford.
do.....	L'Anse.....	.....	L'Anse Day-School for the Deaf.....	Lora Hunter.
do.....	Manistee.....	Union School.....	Manistee Day-School for the Deaf.....	Harriet I. Sanford.
do.....	Marquette.....	.....	Marquette Day-School for the Deaf.....	Florence E. Spalding.
do.....	North Detroit.....	.....	Evangelical Lutheran Deaf-Mute Institute.....	Rev. William Gielow, B. A.
do.....	Saginaw.....	South Weadock Ave.....	Saginaw Oral Day-School for the Deaf.....	Etta E. MacFarlane.
do.....	Sault Ste. Marie.....	Boardman School.....	Sault Ste. Marie Day-School for the Deaf.....	Jessie L. Thew.
do.....	Traverse City.....	.....	Traverse City Day-School for the Deaf.....	Annie McQuillan.
Minnesota	Faribault.....	.....	Minnesota School for the Deaf.....	James N. Tate, M. A., LL. D.
Mississippi	Jackson.....	.....	Mississippi Institution for the Deaf.....	J. R. Dobyns, M. A., LL. D.
Missouri	Fulton.....	.....	Missouri School for the Deaf.....	S. Tefft Walker, M. A.
do.....	St. Louis.....	901 N. Garrison Ave.....	Immaculate Conception School for the Deaf.....	Sisters of St. Joseph.
do.....	do.....	3435 Henrietta St.....	Gallaudet School.....	Rev. James H. Cloud, M. A.
Montana	Boulder.....	.....	Montana School for the Deaf and Blind.....	H. J. Menzemer, M. A.
Nebraska	Omaha.....	.....	Nebraska School for the Deaf.....	F. W. Booth, B. S.
New Jersey	Jersey City.....	Coles St.....	Jersey City Public Day-School for the Deaf.....	Grace Thayer.
do.....	Newark.....	James St. School.....	Newark School for the Deaf.....	Grace L. Wright.
do.....	Trenton.....	.....	New Jersey School for the Deaf.....	John P. Walker, M. A.
New Mexico	Sante Fe.....	.....	New Mexico Asylum for the Deaf and Dumb.....	W. O. Connor, Jr., M. A.
New York	Albany.....	98 N. Pine Ave.....	Albany Home Sch. for Oral Instr. of the Deaf.....	Mary McGuire.
do.....	Brooklyn.....	113 Buffalo Ave.....	Branch of St. Joseph's Institution for the Improved Instruction of Deaf-Mutes.....	N. Frances O'Connor.
do.....	do.....	St. Nicholas Ave. & Suydam St.....	Public School No. 162 (Classes for the Deaf).....	M. Lizzie Donohoe.
do.....	Buffalo.....	2253 Main St.....	Le Couteux St. Mary's Institution for the Improved Instruction of Deaf-Mutes.....	Sister Mary Anne Burke.
do.....	do.....	Orchard Ave. and Fifth St.....	Public School No. 89 (Classes for the Deaf).....	Carrie W. Kearns.
do.....	Elmhurst.....	772 East 188th St.....	Branch of St. Joseph's Institution for the Improved Instruction of Deaf-Mutes.....	Mary A. Kennedy.
do.....	Fordham.....	.....	Northern New York Institution for Deaf-Mutes.....	Edward C. Rider.
do.....	Malone.....	.....	.....	.....

TABLE I.—CONTINUED.—SCHOOLS FOR THE DEAF IN THE UNITED STATES

State or Territory	Town	Street or District	Official Name of School	Chief Executive Officer
New York	New York	225 E. 23d St.	Public School No. 47	Carrie W. Kearns
do	do	904 Lexington Ave.	Inst. for Improved Instruction of Deaf-Mutes	Harris Taylor, LL. D.
do	do	1, 2, and 3, Mt. Morris Park W.	Wright Oral School	John D. Wright, M. A.
do	do	Fort Wash. Ave. & W. 163d St.	New York Inst. for Instr. of Deaf and Dumb	Enoch Henry Currier, M. A.
do	do	534 W. 187th St.	Reno Margulies School for Children with Defective Hearing	Mrs. A. Reno Margulies.
do	Rochester	945 N. St. Paul St.	Western New York Inst. for Deaf-Mutes	F. Westervelt, LL. D.
do	Rome		Central New York Inst. for Deaf-Mutes	Elbert A. Gruver, M. A.
do	Westchester		Branch of St. Joseph's Inst. for the Improved Instruction of Deaf-Mutes	Rose A. Fagan.
North Carolina	Morganton		North Carolina School for the Deaf and Dumb	E. McK. Goodwin, M. A.
do	Raleigh		North Carolina School for the Blind and Deaf	John E. Ray, M. A.
North Dakota	Devils Lake		North Dakota School for the Deaf and Dumb	J. W. Blattner, M. A.
Ohio	Ashtabula	Tyler Avenue	Ashtabula Day-School for the Deaf	Ethel Owens.
do	Cincinnati	Gilbert and Yale Aves.	Miss Breckenridge's School	Mary S. Breckenridge.
do	do	321 East Sixth St.	Notre Dame School for the Deaf	Sister Mary of the Sacred Heart.
do	do	Main and Woodward Sts.	Cincinnati Oral School	Virginia A. Osborn.
do	Cleveland	2380 E. 55th St.	Cleveland Public School for the Deaf	Grace C. Burton, M. A.
do	Columbus		Ohio State School for the Deaf	J. W. Jones, M. A.
do	Conneaut	Main and School Sts.	Conneaut Oral School	Helena P. Newman, B. A.
do	Dayton	1st and St. Clair Sts.	Dayton Day-School for the Deaf	Nannie C. Kennedy.
do	Toledo	Walbridge and Broadway Ave.	Toledo Day-School for the Deaf	Nora Hisey.
Oklahoma	Sulphur		Oklahoma School for the Deaf	A. A. Stewart.
do	Taft		Industrial Institution for the Deaf, Blind, and Orphans of the Colored Race	S. Douglas Russell.
Oregon	Portland	East 12th and Ankeny Sts.	Portland Day-School for the Deaf	Anna Sullivan.
do	Salem	do	Oregon School for the Deaf	Edward S. Tillinghast, B. A.
Pennsylvania	Edgewood Pk.		Western Penna. Inst. for the Instruction of the Deaf and Dumb	William N. Burt, M. A., Ph. D.
do	Philadelphia	Belmont and Monument Aves.	Home for the Training in Speech of Deaf Children before they are of School Age	Mary S. Garrett.
do	do	Mount Airy	Pennsylvania Institution for the Deaf and Dumb	A. L. E. Crouter, M. A., LL. D.
do	Pittsburgh	Castlegate Ave., Brookline	De Paul Institute for Deaf-Mutes	Sister Mary Cecelia.
do	Scranton		Pennsylvania Oral School for the Deaf	Kate H. Fish.
do	Swarthmore		Swarthmore School and Kindergarten for the Deaf	Mrs. J. Scott Anderson.
Rhode Island	Providence	Chester R'd and Ogden Ave.	Rhode Island Institute for the Deaf	Edwin G. Hurd, M. A.
South Carolina	Cedar Spring	520 Hope St.	South Carolina Inst. for the Education of the Deaf and the Blind	Newton F. Walker, LL. D.
South Dakota	Sioux Falls		South Dakota School for the Deaf	Howard W. Simpson.
do	Lead	514 Main St.	Black Hills School for the Deaf	Miss F. L. Willhoyte.
Tennessee	Knoxville		Tennessee Deaf and Dumb School	Thomas L. Moses.
Texas	Austin		Texas Deaf and Dumb Asylum	Tunis V. Archer, M. A.

SCHOOLS FOR THE DEAF IN CANADA			
do.....	do.....	Deaf, Dumb and Blind Inst. for Colored Youth..	J. H. Stewart.
Utah.....	Ogden.....	Utah School for the Deaf and the Blind.....	Frank M. Driggs, M. A.
Vermont.....	Brattleboro.....	Austine Institution for the Deaf and Blind.....	Helen G. Throckmorton.
Virginia.....	Newport News.....	Va. St. School for Colored Deaf & Blind Children	William C. Ritter.
do.....	Stanton.....	Virginia School for the Deaf and the Blind....	William A. Bowles.
Washington.....	Seattle.....	Seattle Day-School for the Deaf.....	Emily Simpkins.
do.....	Tacoma.....	Tacoma Day-School for the Deaf.....	Elizabeth A. Ahnefeldt.
do.....	Vancouver.....	Washington State School for the Deaf and Blind..	Thomas P. Clarke.
West Virginia.....	Romney.....	West Virginia School for the Deaf and Blind....	R. Cary Montague.
Wisconsin.....	Antigo.....	Antigo Day-School for the Deaf.....	Katharine C. Grimes.
do.....	Appleton.....	Appleton Day-School for the Deaf.....	Hannah I. Gardner.
do.....	Ashland.....	Ashland Day-School for the Deaf.....	Margaret Clowry.
do.....	Black R'r Falls.....	Black River Falls School for the Deaf.....	Tillie Walden.
do.....	Bloomington.....	Bloomington Day-School for the Deaf.....	Mabel G. Willett.
do.....	Delavan.....	Wisconsin State School for the Deaf.....	E. W. Walker.
do.....	Eau Claire.....	Eau Claire Day-School for the Deaf.....	Jennie C. Smith.
do.....	Fond du Lac.....	Fond du Lac Day-School for the Deaf.....	Anna Nugent.
do.....	Green Bay.....	Green Bay Day-School for the Deaf.....	M. Stella Flatley.
do.....	La Crosse.....	La Crosse Day-School for the Deaf.....	Julia L. Dean.
do.....	Madison.....	Madison Day-School for the Deaf.....	Irene R. Flatley.
do.....	Marquette.....	Marquette Day-School for the Deaf.....	Katharine F. Reed.
do.....	Marshfield.....	Marshfield School for the Deaf.....	Anna M. Condon.
do.....	Milwaukee.....	Milwaukee School for the Deaf.....	Frances Wettstein.
do.....	Mineral Point.....	Mineral Point School for the Deaf.....	Josephine Pierce.
do.....	New London.....	New London Day-School for the Deaf.....	Carrie H. Archibald.
do.....	Oshkosh.....	Oshkosh School for the Deaf.....	Agnes E. Sullivan.
do.....	Platteville.....	Platteville Day-School for the Deaf.....	Lelah F. Brooke.
do.....	Racine.....	Racine Day-School for the Deaf.....	Bessie M. Everhard.
do.....	Rice Lake.....	Rice Lake Day-School for the Deaf.....	Faye Kingsbury.
do.....	St. Francis.....	St. John's Institute for Deaf-Mutes.....	Rev. M. M. Gerend.
do.....	Sheboygan.....	Sheboygan Day-School for the Deaf.....	Mabel Rusch.
do.....	Stevens Point.....	Stevens Point Day-School for the Deaf.....	E. Ellen MacNees.
do.....	Wausau.....	Wausau Day-School for the Deaf.....	Etta R. Gault.
do.....	West Superior.....	Superior Day-School for the Deaf.....	May E. Duggan.
Manitoba.....	Winnipeg.....	Institution for the Deaf and Dumb.....	Howard J. McDermid, M. D.
New Brunswick.....	St. John.....	New Brunswick School for the Deaf.....	Jos. Keating.
Nova Scotia.....	Halifax.....	Halifax Institution for the Deaf and Dumb.....	James Fearon.
Ontario.....	Belleville.....	Ontario Institution for the Deaf and Dumb.....	Chas. B. Coughlin, M. D.
Quebec.....	Montreal.....	Catholic Female Deaf and Dumb Institution....	Sister Bertille.
do.....	do.....	Catholic Male Deaf-Mute Institution.....	Rev. J. M. Cadieux, C. S. V.
do.....	do.....	Mackay Inst. for Prot. Deaf-Mutes and Blind....	Mrs. Harriet E. Ashcroft.

TABLE II.—SPEECH-TEACHING IN AMERICAN SCHOOLS FOR THE DEAF, MARCH 1, 1913

SCHOOLS FOR THE DEAF			NUMBER OF PUPILS		TAUGHT SPEECH		SPEECH USED AS A MEANS OF INSTRUCTION								
IN			Total Query 9	Taught Speech	Speech Not Taught Query 8	Speech Used as a means of in- struction Query 7	Not stated whether used or not	S in Schoolroom outside Query 1	S in Schoolroom outside Query 2	S in Schoolroom outside Query 3	SS in Schoolroom outside Query 4	SS in Schoolroom outside Query 5	SSS in Schoolroom outside Query 6	Unclasi- fied	
THE UNITED STATES															
Arranged alphabetically according to location			Query 9												
Ala.	Talladega School.....	164	72	92	72	—	—	—	—	72	—	—	—	—	—
Ariz.	Tucson School (1).....	25	20	5	20	—	—	—	—	—	—	—	20	—	—
Ark.	Little Rock School (2).....	264	112	152	112	—	—	—	—	112	—	—	56	—	—
Cal.	Berkeley School (17).....	157	84	73	84	—	—	36	—	28	—	—	—	—	—
"	Los Angeles School.....	36	36	—	36	—	—	12	—	—	—	—	—	—	—
"	Oakland, 17th & West St. School.	12	12	—	12	—	—	—	—	—	—	—	—	—	—
"	" Teleg. Ave. School.....	23	19	4	19	—	—	11	—	—	4	—	15	—	—
"	Sacramento School.....	11	11	—	11	—	—	—	—	—	—	—	—	—	—
"	San Francisco School.....	27	27	—	27	—	—	27	—	—	—	—	—	—	—
Col.	Colorado Springs School.....	152	86	66	86	—	—	—	—	86	—	—	14	—	—
Conn.	Hartford School.....	144	118	26	111	7	—	—	—	97	—	—	70	—	—
"	Mystic School.....	59	59	—	59	—	—	59	—	—	—	—	—	—	—
D. C.	Washington, Gallaudet College (3)	79	70	9	70	—	—	4	—	35	11	—	—	—	—
"	" Kendall School (3).....	50	50	—	50	—	—	—	—	48	—	—	10	—	—
Fla.	St. Augustine School.....	86	48	38	48	—	—	—	—	—	—	—	—	—	—
Ga.	Atlanta School.....	10	10	—	10	—	—	—	—	—	—	—	—	—	—
"	Cave Spring School.....	130	98	32	98	—	—	—	—	—	—	—	—	—	—
"	Macon School.....	8	8	—	8	—	—	8	—	—	—	12	—	—	—
Idaho	Gooding School.....	49	46	3	46	—	—	—	—	34	—	—	—	—	—
Ill.	Chicago Schools: (4)														
	Asland & Wabansia Sts.....	42	42	—	42	—	—	42	—	—	—	—	—	—	—
	Cal. Ave. near Wabansia St....	43	43	—	43	—	—	43	—	—	—	—	—	—	—
	Chestnut and N. State Sts....	18	18	—	18	—	—	18	—	—	—	—	—	—	—
	Harrison near Halstead St....	19	19	—	19	—	—	19	—	—	—	—	—	—	—
	Ingleside Ave. & 54th St.....	10	10	—	10	—	—	10	—	—	—	—	—	—	—
	17th bet. Loomis & Laflin Sts..	14	14	—	14	—	—	14	—	—	—	—	—	—	—
	67th St. & Stewart Ave.....	104	104	—	104	—	—	104	—	—	—	—	—	—	—
	31st & Loomis Sts.....	12	12	—	12	—	—	12	—	—	—	—	—	—	—
	21st Pl. & California Ave.....	8	8	—	8	—	—	8	—	—	—	—	—	—	—
	Belmont & 40th Ave. School (5)	90	75	15	75	—	—	—	—	75	—	—	—	—	—
	6550 Yale Ave. & 6756 Normal Ave. School.....	38	38	—	38	—	—	38	—	—	—	—	—	—	—
"	Jacksonville School.....	405	335	70	335	—	—	—	—	108	—	—	227	—	—
"	Rock Island School.....	8	8	—	8	—	—	8	—	—	—	—	—	—	—
Ind.	Indianapolis School.....	303	221	82	221	—	—	—	—	221	—	—	—	—	—
Iowa	Council Bluffs School.....	224	123	101	123	—	—	—	—	123	—	—	—	—	—
Kan.	Olathe School.....	237	126	111	126	—	—	—	—	53	—	—	—	—	—
Ky.	Danville School.....	312	173	160	173	—	—	—	—	—	—	24	—	40	—

La.	Baton Rouge School.....	41	29	12	8	105	25	1	4	105	16
Me.	Chincha School.....	113	105	—	—	105	—	—	—	—	—
Md.	Portland School.....	25	25	—	—	25	—	—	—	—	—
"	Baltimore, Hollins St. School...	30	30	41	—	30	—	—	26	—	—
"	" Woodland Ave. Sch.	102	61	—	—	10	—	—	—	—	—
"	Frederick City School.....	10	10	—	—	10	—	—	—	—	—
"	Kensington School.....	42	30	12	—	30	—	—	—	—	—
Mass.	Parkville School (6).....	27	27	—	—	27	—	—	—	—	—
"	Beverly School.....	133	133	—	—	133	—	—	—	—	—
"	Boston, Horace Mann School...	156	156	—	—	156	—	—	—	—	—
"	Northampton School.....	146	146	—	—	146	—	—	—	—	—
"	Randolph School.....	11	11	—	—	11	—	—	—	—	—
"	West Medford School.....	7	7	—	—	7	—	—	—	—	—
Mich.	Bay City School.....	12	12	—	—	12	—	—	—	—	—
"	Calumet School.....	79	79	—	—	79	—	—	—	—	—
"	Detroit School.....	201	201	97	—	201	—	—	—	201	—
"	Flint School.....	27	27	—	—	27	—	—	—	—	—
"	Grand Rapids School.....	4	4	—	—	4	—	—	—	—	—
"	Houghton School.....	3	3	—	—	3	—	—	—	—	—
"	Iron Mountain School.....	9	9	—	—	9	—	—	—	—	—
"	Ironwood School.....	7	7	—	—	7	—	—	—	—	—
"	Jackson School.....	4	4	—	—	4	—	—	—	—	—
"	Kalamazoo School.....	4	4	—	—	4	—	—	—	—	—
"	L'Anse School.....	5	5	—	—	5	—	—	—	—	—
"	Manistee School.....	10	10	—	—	10	—	—	—	—	—
"	Marquette School.....	7	7	—	—	7	—	—	—	—	—
"	North Detroit School.....	29	21	8	—	21	—	—	9	12	—
"	Saginaw School (7).....	11	11	—	—	11	—	—	—	—	—
"	Sault Ste. Marie School.....	7	7	—	—	7	—	—	—	—	—
"	Traverse City School.....	9	9	—	—	9	—	—	—	—	—
Minn.	Faribault School.....	257	166	91	—	166	—	—	166	—	—
Miss.	Jackson School.....	187	50	137	—	50	—	—	—	—	—
Mo.	Fulton School.....	296	137	159	—	137	—	—	94	43	—
"	St. Louis, Garrison Ave. Sch. (17)	72	46	26	—	16	—	—	—	21	—
"	" Henrietta St. Sch. (8)	55	55	20	—	35	—	—	9	—	—
Mont.	Boulder School.....	49	29	20	—	29	—	—	12	—	—
Neb.	Omaha School.....	160	100	60	—	79	—	—	17	—	—
N.J.	Jersey City School.....	10	9	1	—	9	—	—	16	—	—
"	Newark School.....	55	55	—	—	55	—	—	—	—	—
"	Trenton School (9).....	156	138	18	—	138	—	—	—	138	—
N.M.	Santa Fé School.....	37	29	8	—	29	—	—	—	—	—
N.Y.	Albany School.....	52	52	—	—	52	—	—	—	—	—
"	Brooklyn, Buffalo Ave. School.	100	100	—	—	100	—	—	100	—	—
"	" St. Nicholas Ave. Sch	18	18	—	—	18	—	—	—	—	—
"	Buffalo School.....	162	159	3	—	159	—	—	—	—	—
"	Elmhurst School.....	8	8	—	—	8	—	—	145	—	—
"	Fordham School.....	137	137	—	—	137	—	—	—	—	—
"	Malone School (17).....	91	91	—	—	91	—	—	40	—	—
N.Y.	N.Y., 225 E. 23d St. School.....	226	226	—	—	226	—	—	—	—	—
"	" 904 Lexington Ave. School.	242	242	—	—	242	—	—	—	—	—
"	" 1, 2, & 3 Mt. Morris Park	26	26	—	—	26	—	—	—	—	—
"	West School.....	26	26	—	—	26	—	—	—	—	—

TABLE II—CONTINUED.—SPEECH-TEACHING IN AMERICAN SCHOOLS FOR THE DEAF, MARCH 1, 1913

SCHOOLS FOR THE DEAF IN THE UNITED STATES Arranged alphabetically according to location		NUMBER OF PUPILS		TAUGHT SPEECH		SPEECH USED AS A MEANS OF INSTRUCTION						Unclas- sified
Total Query 9	Taught Speech Query 8	Speech Not Taught Query 8	Speech Used as a means of in- struction Query 7	Speech Not stated whether used or not	S in Schoolroom outside Query 1	S in Schoolroom SSS outside Query 2	S in Schoolroom SSS outside Query 3	SS in Schoolroom SSS outside Query 4	SS in Schoolroom SSS outside Query 5	SSS in Schoolroom SSS outside Query 6		
N. Y.	491	491	339	152	—	—	—	339	—	—	—	—
"	15	15	15	—	—	15	—	—	—	—	—	—
"	167	167	167	—	—	—	—	—	—	—	—	—
"	93	84	84	—	—	84	—	167	—	—	—	—
"	280	280	280	—	—	—	—	—	280	—	—	—
N. C.	243	192	192	—	—	—	—	—	—	—	—	—
"	106	49	49	—	—	73	—	119	—	—	—	—
N. D.	89	62	62	—	—	28	21	62	—	—	—	—
Ohio	6	6	6	—	—	6	—	—	—	—	—	—
"	2	2	2	—	—	2	—	—	—	10	—	—
"	10	10	10	—	—	—	—	—	—	—	—	—
"	38	38	38	—	—	38	—	—	1	—	—	—
"	96	96	96	—	—	95	—	—	—	2	—	—
"	480	292	284	8	—	6	—	282	—	—	—	—
"	6	6	6	—	—	—	—	—	—	—	—	—
"	10	10	10	—	—	10	—	—	—	—	—	—
"	11	11	11	—	—	11	—	—	—	—	—	—
Okla.	203	81	81	—	—	—	—	81	—	—	—	—
"	18	18	—	—	—	—	—	—	—	—	—	—
Ore.	21	19	19	—	—	19	—	—	—	—	—	—
"	86	52	52	—	—	—	—	—	—	—	—	—
Penn.	248	228	228	—	—	—	—	228	—	—	—	—
"	65	65	65	—	—	65	—	—	—	—	—	—
"	532	532	532	—	—	532	—	—	—	—	—	—
"	64	64	64	—	—	64	—	—	—	—	—	—
"	100	100	100	—	—	100	—	—	—	—	—	—
"	5	5	5	—	—	5	—	—	—	—	—	—
R. I.	89	89	89	—	—	89	—	—	—	—	—	—
S. C.	138	60	60	—	—	60	—	60	—	—	—	—
"	86	53	53	—	—	53	—	53	—	—	—	—
S. D.	2	2	2	—	—	2	—	53	—	—	—	—
"	269	102	102	—	—	102	—	93	9	—	—	—
Tenn.	40	20	20	—	—	20	—	—	—	—	—	—
Tex.	312	142	142	—	—	142	—	—	—	—	—	—
Utah	100	100	100	—	—	100	—	—	—	—	—	—



[illegible]

TABLE III.—SPEECH-TEACHING IN AMERICAN SCHOOLS FOR THE DEAF,  
MARCH 1, 1913.

GENERAL SUMMARY	United States		Canada	
	No. of Pupils	Per cent of Pupils	No. of Pupils	Per cent of Pupils
TOTAL PUPILS.....	13143	100.0	838	100.0
Taught Speech.....	10009	76.2	558	66.6
Not taught Speech..	3134	23.8	280	33.4
TAUGHT SPEECH:				
Speech used as means of instruction....	9700	73.9	542	64.7
Speech not used as means of instruction.....	212	1.6	16	1.9
Not stated (whether used or not).....	97	0.7	—	—
SPEECH USED AS MEANS OF INSTRUCTION:				
In Schoolroom—				
S.....	3545	27.0	321	38.3
S.....	105	0.8	—	—
S.....	3846	29.3	154	18.4
SS.....	223	1.7	—	—
SS.....	661	5.0	62	7.4
SSS.....	1180	9.0	5	0.6
Unclassified.....	140	1.1	—	—
Outside—				
S.....	3545	27.0	321	38.3
SS.....	105	0.8	—	—
SSS.....	3846	29.3	154	18.4
SS.....	223	1.7	—	—
SSS.....	661	5.0	62	7.4
SSS.....	1180	9.0	5	0.6
Unclassified.....	140	1.1	—	—

TABLE IV.—SPEECH-TEACHING IN AMERICAN SCHOOLS FOR THE DEAF,  
MARCH 1, 1913.

MEANS OF INSTRUCTION IN SCHOOL AND OUTSIDE. (See diagrams, pp. 90 and 91)			United States		Canada	
			No. of Pupils	Per cent	No. of Pupils	Per cent
Diagrams	Schoolroom	Outside				
	S.....	S.....	3545	27.0	321	38.3
Line 4.....	Total S.....		3545	27.0	321	38.3
	S.....	SS.....	105	0.8	—	—
	SS.....	SS.....	223	1.7	—	—
Line 5.....	Total SS.....		328	2.5	—	—
	S.....	SSS.....	3846	29.3	154	18.4
	SS.....	SSS.....	661	5.0	62	7.4
	SSS.....	SSS.....	1180	9.0	5	0.6
	Unclassified.	SSS.....	140	1.1	—	—
Line 6.....	Total SSS.....		5827	44.4	221	26.4

Symbols employed in above Tables:

S Speech (no Spelling, no Sign-language).  
SS Speech and Spelling (no Sign-language).  
SSS Speech, Spelling, and Sign-language.

TABLE V.—SPEECH-TEACHING IN AMERICAN SCHOOLS FOR THE DEAF,  
MARCH 1, 1913

SCHOOLROOM USAGE without reference to outside instruction (See diagrams, pp. 90 and 91)			United States		Canada	
			No. of Pupils	Per cent	No. of Pupils	Per cent
<b>Diagrams</b>	<b>Schoolroom</b>	<b>Outside</b>				
	S.....	S.....	3545	27.0	321	38.3
	S.....	SS.....	105	0.8	—	—
	S.....	SSS.....	3846	29.3	154	18.4
<b>Line 7, Total S.....</b>			<b>7496</b>	<b>57.1</b>	<b>475</b>	<b>56.7</b>
	SS.....	SS.....	223	1.7	—	—
	SS.....	SSS.....	661	5.0	62	7.4
<b>Line 8, Total SS.....</b>			<b>884</b>	<b>6.7</b>	<b>62</b>	<b>7.4</b>
	SSS.....	SSS.....	1180	9.0	5	0.6
	Unclassified.	SSS.....	140	1.1	—	—
<b>Line 9, Total SSS.....</b>			<b>1320</b>	<b>10.1</b>	<b>5</b>	<b>0.6</b>

Symbols employed in above Table:

S Speech (no Spelling, no Sign-language).

SS Speech and Spelling (no Sign-language).

SSS Speech, Spelling, and Sign-language.

## EXPLANATION.

The statistics in Tables II, III, IV, and V were compiled from replies to the following queries:

- Query 1. SPEECH (without spelling or sign-language) used both in the school-room and outside, with.....pupils.
- Query 2. SPEECH (without spelling or sign-language) used in the school-room; but SPELLING (without sign-language) also used outside in chapel exercises, workshop instruction, etc., with.....pupils.
- Query 3. SPEECH (without spelling or sign-language) used in the school-room; but SPELLING and SIGN-LANGUAGE also used outside in chapel exercises, workshop instruction, etc., with.....pupils.
- Query 4. SPEECH and SPELLING (without sign-language) used both in the school-room and outside, with.....pupils.
- Query 5. SPEECH and SPELLING (without sign-language) used in the school-room; but SIGN-LANGUAGE also used outside in chapel exercises, workshop instruction, etc., with.....pupils.
- Query 6. SPEECH, SPELLING, and SIGN-LANGUAGE used both in the school-room and outside, with.....pupils.
- Query 7. Number taught ARTICULATION without speech being used as a means of instruction (their general education being carried on by silent methods), .....pupils.
- Query 8. Number taught by silent methods alone, without being taught articulation or speech, ....pupils.
- Query 9. Number of pupils in this school March 1, 1912. Total, .....pupils.

## NOTES

(1) School for the Deaf, Tucson, Ariz.: Principal Henry C. White reports as follows: Query 3, 25; Query 4, 20; Query 6, 25; Query 8, 5; total, 25; taught speech, 20; not taught speech, 5. We have tabulated these returns, to the best of our ability, as follows: Query 6, 20; Query 8, 5; total, 25. Mr. White further remarks:

"Your language is too intricate, making the questions look like a Chinese puzzle. There can be no such fast and loose methods in the education of the deaf.

"In this case our school is in its first year, and grading of the pupils is difficult. The only safe way in our case is to put every pupil through the 'first degree' of their education, and that is the oral method. Such pupils as 'semi-mutes' or those with a slight deficiency of hearing will be always educated orally. These are in a class by themselves and numerically smaller, as everybody in the profession ought to know.

"Then the others whose speech is limited will be taught articulation and lip-reading and educated orally as far as possible in the 'second degree.'

"The rest who have no powers of speech will be taught by the best possible method, and that is the sign language, or the 'third degree' in their education.

"It will take another year to grade such pupils properly in this school.

"I must say that your use of the phrase 'silent methods' strikes me as a little strange. Is it the antithesis of 'noisy methods'?

"It seems to me too much like repetition when you say 'Number taught by silent methods alone, without being taught articulation or speech.' You might as well say 'sour vinegar,' when it is always sour; otherwise it would not be vinegar."

(2) Arkansas Deaf-Mute Institute: Isaac B. Gardner writes: "Thirty-eight of our pupils are colored and have no speech teacher."

(3) Columbia Institution for the Deaf (Gallaudet College and Kendall School): President Percival Hall writes: "It is impossible to make these statistics accurate under your forms. For instance, we have a number of students who are being taught partly by means of speech and yet are not being taught speech."

(4) Chicago Schools for the Deaf: Miss Mary McCowen reports several changes in the day-schools of this city. The schools formerly at the Phil Sheridan Public School and the Seward Public School have been transferred to the Parker Practice School. The Clarke Public School class has been removed to the Jirka School during the remodeling of the former building.

(5) Ephpheta School for the Deaf, Chicago, Illinois: Annie M. Larkin, Superintendent, reports as follows: "Taught speech, 75; not taught speech, 15; total, 90. Five-sixths of the pupils are taught by speech and writing. The combined method is used outside of school-room." We have therefore classified pupils as: Query 3, 75; Query 8, 15.

(6) Maryland School for the Colored Blind and Deaf: T. C. Forrester, Resident Principal, writes: "Four of the 12 pupils reported under Query 8 are in the Industrial Department only."

(7) Saginaw (Michigan) Day-School for the Deaf: Miss Etta E. MacFarlane says: "In addition to the regular course of study, manual training is given to the pupils as follows: Basketry, 9; cooking, 4; sewing, 5; gymnastics, 2, in the school gymnasium with hearing classes."

(8) Gallaudet School, St. Louis, Mo.: Rev. James H. Cloud adds: "Query 10, Number of pupils whose education would be *retarded* if the pure oral method was used, 50."

(9) New Jersey School for the Deaf (Trenton, N. J.): Superintendent John P. Walker writes: "While all of my teachers, with a single exception, are now trained oral teachers and we are restricting signs to the narrowest possible limits, I notice that there is a little 'acting out' at times everywhere; so, out of deference for the truth, I am obliged to admit 'combined methods.'"

(10) Cleveland (Ohio) Day-School for the Deaf: The one pupil returned under Query 4 is deaf-blind.

(11) Portland (Oregon) Day-School for the Deaf: Miss Anna Sullivan reports: Query 1, 21; total, 21. Summary, taught speech, 19; not taught speech, 2. We have therefore corrected the detailed report to read: Query 1, 19; Query 8, 2; total 21.

(12) Pennsylvania Oral School for the Deaf, Scranton, Penna.: Kate H. Fish reports all pupils under Query 1, but adds: "We do not *forbid* signs outside and natural signs are used."

(13) Utah School for the Deaf and Blind: Frank M. Driggs reports: Query 3, 93; Query 5, 19; Query 7, 1; Query 8, 9; total, 112. Summary, taught speech, 103; not taught speech, 9. In order to make the returns agree with total number of pupils reported, we have reduced number returned under Query 3 to 83.

(14) Austine Institution, Brattleboro, Vt.: Helen G. Throckmorton, Principal, writes: "In addition to the 23 pupils enrolled in the Literary Department, there are two pupils taught domestic science only by special permission of the Board of Directors for this one year. These have been taught by silent methods alone previous to September, 1912. We give no instruction by silent methods."

(15) Virginia State School for the Colored Deaf and Blind: The figures returned read: Query 6, 75; Query 8, 75; total, 75. Summary, taught speech, none; not taught speech, 75. We have therefore changed the figures in Query 6 from 75 to zero.

(16) West Virginia School for the Deaf, Romney, W. Va.: R. Cary Montague, Superintendent, reports as follows: Query 3, 44; Query 6, 29; Query 8, 72; total, 145. Summary, taught speech, 72; not taught speech, 73. We have transposed these last two returns to agree with the figures in the detailed report.

(17) No returns had been received from the following schools up to the time the figures were tabulated: California Institution for the Deaf, Berkeley, Cal.; Immaculate Conception School for the Deaf, St. Louis, Mo.; Northern New York Institution for Deaf-Mutes, Malone, N. Y.; Cincinnati Oral School, Cincinnati, Ohio; Oregon School for the Deaf, Salem, Ore., and Washington School for the Deaf, Vancouver, Wash. We have used the best available figures for these schools as follows: In the first four cases returns compiled from last year's report, and in the last two from the "American Annals of the Deaf," January, 1913.

(18) Minnesota School for the Deaf: Superintendent J. H. Tate reported as follows: Query 3, 166; Query 8, 91; total, 276; taught speech, 175; not taught speech, 101. In the tabulated columns we entered the figures given in the detailed report in preference to the summary. A new report received too late for tabulation shows the correct figures as follows: Query 3, 175; Query 8, 101; total, 276; taught speech, 175; not taught speech, 101.

C. M. Bardwell, Superintendent Public Schools, Aurora, Ill., reports: "I regret to announce we were obliged to close our Day-School for the Deaf, as we were unable to secure a competent teacher. I am hoping, however, that we may find it possible to open it again in the fall. Our instruction was purely oral, without sign-language."

Institution for Feeble-Minded Children, Glenwood, Iowa: Miss Inah A. Strain, formerly of the Iowa School for the Deaf, has organized a class of nine deaf children of this institution and is instructing them in special classes for two hours each day. As these children are all feeble-minded, as well as deaf, we have not included them in the regular columns. The returns given by Miss Strain are as follows: Query 7, 7 pupils; Query 8, 2 pupils; total, 9 pupils.

#### REPORTS RECEIVED TOO LATE TO BE CLASSIFIED AND TABULATED

Northern New York Institution for Deaf-Mutes, Malone, N. Y.: Query 1, 34; Query 2, 56; total, 90; taught speech, 90.

California Institution for the Deaf and Blind, Berkeley, Cal.: Query 3, 48; Query 6, 72; Query 7, 38; Query 8, 39; total, 165; taught speech, 126; not taught speech, 39.



## LOYALTY OF TEACHERS OF THE DEAF TOWARD EACH OTHER AND TOWARD THE CAUSE

BY CARRIE H. ARCHIBALD, NEW LONDON, WISCONSIN

UNDOUBTEDLY, at first thought, most of us would greatly resent the inference that we are not in all ways loyal. But are we? Let us see.

Webster defines loyalty as fealty, allegiance, fidelity. Fealty means constancy implied in a promise given, allegiance means devotion, and fidelity means faithfulness or truthfulness. Are we all of these in respect to our cause and each other? Is it not worth while to give this serious thought?

As teachers of the deaf, we form a little class by ourselves, and seem to stand a little closer to each other than any other body of teachers, and for that reason, if for no other, it would seem, we should be steadfastly loyal to one another. But are we? May I ask that, for just a few moments, we turn our magnifying glasses toward ourselves and examine our *real, personal* attitude.

We are all aware that from time to time rumors creep out about this school or that school, this teacher or that teacher, sometimes quite unkindly in their nature, and usually based upon practically nothing. What do we do about them? Listen to them and pass them on as a choice bit of "news," or discredit them as we have opportunity? There would seem only one honorable thing to do. As members of one of the grandest professions, we are surely above gossip for gossip's sake. Doubtless we will all readily agree that no good ever comes from repeating a thing of this nature, and often a perfectly innocent person is greatly injured. Personally I should much rather be ignorant of such reports, and doubtless most of you feel the same.

Years ago I learned a little rule at my mother's knee. I pass it on to you. "If you hear anything good about any one, tell it; if anything bad, forget it." It is so much more pleasant to believe good than evil of any one.

"There's so much good in the worst of us,  
And so much bad in the best of us,  
It ill behooves any of us,  
To talk about the rest of us."

### VISITING OTHER SCHOOLS

After visiting another school, what do we do? Come away and pick flaws in everything we see, or remember that, in our own school, the days we have company and are especially anxious are often the times our pupils show up to poorest advantage?

What is our object in visiting? If it is not to better ourselves by gaining inspiration and new ideas, rather than to prove ourself the superior teacher, then surely our attitude is wrong.

Then how frequently we hear about some teacher drawing pupils from some other teacher's school in order to increase her own enrollment. Personally I do not believe that any teacher in the schools for the deaf will knowingly do this. Certainly, if she did, she would seem disloyal. When such things occur I like to believe they are through mistake.

I have had teachers write to parents of pupils that I had in school at the time, but I did not feel that it was necessarily intended as disloyalty to me. After I have spent time and money looking up deaf children, they have sometimes gone to other teachers' schools. These things are not pleasant, but neither are they necessarily disloyal.

### SEIZING OPPORTUNITIES

Do we take advantage of the educational meetings as we have opportunity, or do we use the time given us for this purpose in shopping, visiting, or sight-seeing? I know of a town where, at one time, the school board refused to close schools during the State Teachers' Convention, claiming the teachers simply made it a shopping expedition, and, while

they came home with plenty of new things to wear, they brought back few new ideas for their work. One educational journal, this fall, in urging teachers to attend the State meeting, remarks that it will be a good opportunity to replenish their wardrobes. Perhaps this is *educational loyalty*. I leave you to decide.

Are we keeping up with the times? Do we read the magazines and journals devoted to our work?

Are we keeping our work properly before the public, in order that its real worth may be properly understood?

Are we constantly on the lookout for children who should be enrolled with us, in order that the greatest number possible may be benefited? I know of teachers who take time during every summer vacation to go over their territory seeking out new pupils. School boards, county superintendents, and hearing teachers may assist us very materially in getting into touch with such children.

Lastly, if we oral teachers should find a child who, for good and sufficient reasons, would be better off in a sign school, are we loyal enough to the educational cause to say so, and *vice versa*?

#### SELFISH OR UNSELFISH AIMS

To sum the matter up, what is our chief object? Is it to magnify our own importance, increase our salaries, and secure the prominent positions, or is it to carefully, to the best of our ability, train the deaf children that fall to our care, to such end that they may, so far as is possible, become useful, self-supporting citizens of our great commonwealth, until such time as it may seem best to hand them over to some other teacher?

Faithful, intelligent work will speak for itself, and we need not worry about the important positions. In the Father's sight one child is as important as another, and it matters not *where* we work, so long as we do our work *well*.

Faalty, fidelity, allegiance—let us embody all of these in our attitude toward our cause and each other, and we shall then deserve to be called a band of loyal co-workers.

#### MOVING-PICTURE INDISCRETIONS

In a paper on the subject of lip-reading, which recently appeared in the *Revue de Psychologie*, Mlle. Attilia de Perreti tells the following story: At a cinematographic exhibition a surgical operation in all its details was realistically shown. As the film was rolled out the patient was seen stretched on the table. Then the surgeon came on the scene, knife in hand, ready to open the abdomen. His face was stony in its coolness; not a muscle quivered; only a slight movement of the lips was perceptible; this seemed to indicate some sternly controlled emotion. There happened, however, to be among the spectators a number of pupils from an institution for the deaf and dumb, and while the other people were thrilled with the fascinating horror of the sight, the children burst out into loud laughter. They had read the meaning of the movements of the surgeon's lips; the supposed twitches of nervous tension were interpreted by the deaf-mutes, who read that he was humming to himself the refrain:

On va lui percer le flanc.  
Rantanplan, plan, plan!  
Tireli, ranplan!

Lest this should be taken as a proof of callousness by any of those malicious persons who lose no opportunity of traducing the profession, we think it well to place beside it a story of a very great soldier, who has never been accused of inhumanity. It is related that on the morning after a battle in one of our Egyptian campaigns, Lord Wolsley was heard entering the compartment of his tent which he used as an office. He seemed, as was natural after a victory, to be in good spirits, and approaching his working table he took up a paper, singing while he read it, to the tune of "So early in the morning":

List of killed and wounded,  
List of killed and wounded,  
List of killed and wounded,  
Ti tum, ti tum, ti tay!

To return to lip-reading, Dr. Bérillon, wishing to inquire into the truth of the story of the cinematograph, invited M. Baguer, Director of the Seine Institution for Deaf-Mutes, to read a paper on lip-reading before the Société de Psychothérapie. M. Baguer, by way of experiment, sent a number of adult deaf-mute women to a cinematographic exhibition. The result was conclusive; many of them could read words, phrases, and whole sentences on the lips of the actors. The moral which surgeons who lend themselves to such displays should take to heart is, if their lips move, to be careful of their language.—*British Medical Journal*.

TABLE II.—SPEECH-TEACHING IN AMERICAN SCHOOLS FOR THE DEAF, MARCH 1, 1913

SCHOOLS FOR THE DEAF IN THE UNITED STATES Arranged alphabetically according to location			NUMBER OF PUPILS		TAUGHT SPEECH			SPEECH USED AS A MEANS OF INSTRUCTION					
	Total Query 9	Taught Speech	Speech Not Taught Query 8	Speech Used as a means of in- struction Query 7	Not stated whether used or not	S in Schoolroom outside Query 1	S in Schoolroom SS outside Query 2	S in Schoolroom SSS outside Query 3	SS in Schoolroom SS outside Query 4	SS in Schoolroom SSS outside Query 5	SSS in Schoolroom SSS outside Query 6	Unclasi- fied	
Ala.	164	72	92	72	—	—	—	72	—	—	—	—	
Ariz.	25	20	5	20	—	—	—	112	—	—	20	—	
Ark.	264	112	152	112	—	—	—	28	—	—	56	—	
Cal.	157	84	73	84	—	36	—	—	—	—	—	—	
"	36	36	—	36	—	12	—	—	—	—	—	—	
"	12	12	—	12	—	19	—	—	4	—	15	—	
"	23	19	4	19	—	11	—	—	—	—	—	—	
"	11	11	—	11	—	27	—	—	—	—	—	—	
Col.	27	27	—	27	—	86	—	86	—	—	—	—	
Conn.	152	86	66	86	—	111	—	97	—	—	14	—	
"	144	118	26	111	7	59	—	—	—	—	70	—	
D. C.	59	59	9	70	—	4	—	35	—	—	—	—	
"	79	70	—	50	—	—	—	48	—	—	10	—	
Fla.	86	48	38	48	—	—	—	98	—	—	—	—	
Ga.	10	10	—	10	—	—	—	—	—	—	—	—	
"	130	98	32	98	—	8	—	—	—	12	—	—	
"	8	8	—	—	—	—	—	34	—	—	—	—	
Idaho	49	46	3	46	—	—	—	—	—	—	—	—	
Ill.	42	42	—	42	—	42	—	—	—	—	—	—	
"	43	43	—	43	—	43	—	—	—	—	—	—	
"	18	18	—	18	—	18	—	—	—	—	—	—	
"	19	19	—	19	—	19	—	—	—	—	—	—	
"	10	10	—	10	—	10	—	—	—	—	—	—	
"	14	14	—	14	—	104	—	—	—	—	—	—	
"	104	104	—	104	—	12	—	—	—	—	—	—	
"	12	12	—	12	—	8	—	—	—	—	—	—	
"	8	8	—	8	—	—	—	75	—	—	—	—	
"	90	75	15	75	—	—	—	—	—	—	—	—	
"	38	38	—	38	—	38	—	—	—	—	227	—	
"	405	335	70	335	—	8	—	108	—	—	—	—	
"	8	8	—	8	—	—	—	—	—	—	—	—	
Ind.	303	221	82	221	—	—	—	221	—	—	—	—	
Iowa	224	123	101	123	—	—	—	123	—	—	—	—	
Kan.	237	126	111	126	—	—	—	153	—	24	49	—	
Ky.	342	173	169	173	—	—	—	173	—	—	—	—	



## THOUGHTS FROM THE SCHOOL-PAPER EDITORS

## SIMPLIFIED SPELLING AND THE DEAF

The Simplified Spelling Board is not taken very seriously among the conservative well-educated class and still less so by the average reader. Perhaps this is due to the natural reluctance to have to learn over again what had been acquired by hard work. Even a ready reader is conscious of an effort to recognize the old words in their simplified jackets.

But there is one reason why the deaf who possess the accomplishment of speech, either naturally or acquired, should welcome the movement toward general phonetic spelling. It is because it would be a great advantage to all who are obliged to pronounce words as they are spelled, or rather not as they are spelled, but by arbitrary rules and the diacritical marks over the letters and syllables.

In the case of a semi-mute, he usually goes by memory, and gets away all right with words in the vocabulary he used before his deprivation. With other words learned since, he has to be careful lest he give the wrong sound and not be understood. For this reason reading stories in phonetic spelling, as those of Artemus Ward, of pleasant memory, and Kirk's "Little Bobbie's Pa," will be found a great help by semi-mutes toward improving their pronunciation, even if in some instances the sounds are made so broad as to be uncouth, or what might be termed provincial.—*Arkansas Optic*.

## LANGUAGE THROUGH READING

There has probably never been as great an amount of interest exhibited in the subject of reading as at the present time. Teachers of all shades of opinion are generally agreed that when once we have succeeded in getting a deaf pupil to read we have, as Dr. Graham Bell puts it, "got him." But just how, or when, this very desirable point may be reached does not appear to have been settled. Some have gone so far as to assert that for the purpose of language teaching reading is all sufficient; that we may, in fact, abandon language lessons altogether. We are perfectly willing to grant that hearing children may, with advantage, dispense with formal language lessons and depend entirely upon reading; we also believe that in the case of the semi-deaf, and the semi-mute even, reading may, with perfect safety, be relied upon for the purpose of acquiring a knowledge of language, but there concession ends. We have no faith whatever in the idea that congenitally deaf children, in a school, simply have to keep on reading and that by-and-by all will come right.

In our profession we are very apt to accept any innovation that comes along and hail it as

the long-looked-for solution of our difficulties. At one time the Gouin method was going to solve the language problem for all time. A specimen of what we should imagine to be the result of too much Gouin method was quoted in a paper read by a Northampton teacher at the Providence meeting: "Miss —, may I stand up and walk and carry a pitcher and pour some water into the glasses?"

The five-slate system, story telling, the Montessori system, and in course of time, reading, each in turn, has been regarded as an "Open Sesame" for some branch of our work, and yet we are still seeking for further inspiration. We have not yet succeeded in making readers of all our pupils. It seems as though we are seeking here and there for our object, and all the while it is, as has been said of the Kingdom of Heaven, "within us."

It has often been pointed out that as the hearing child learns language through the ear by constant repetition, we should endeavor to give the deaf child a similar language environment, and reading has been recommended as a substitute for this constant repetition. To draw too close an analogy between the congenitally deaf child and the hearing child, under all conditions, seems to us a mistake. The congenitally deaf child will not always learn language entirely through repetition; neither will he learn to read books so as to understand them without having been previously started in a suitable course of language lessons. We are apt to overestimate the powers of the immature mind and to credit the child with the reasoning powers of the adult. "It is only with advancing years that it becomes possible to understand an involved sentence, to follow long trains of reasoning, and to hold in one mental grasp numerous concurrent circumstances."

There is not the slightest doubt as to the ultimate success of the pupil whose knowledge of language has brought him to the point of reading, ever so little, *with intelligence*; but if he has not reached that point, and he reads, as far too many pupils do, mechanically—repeating or memorizing words without assimilating what they represent—mere repetition is useless. We have from time to time encountered pupils of this description. We have seen them actually poring over books; but as to deriving any real profit or pleasure as a result of their exertions, they simply could not. The contents of the books they were reading afforded them no more interest than did the two books of laws presented to Wouter Van Twiller, who—so the story goes—being called upon to make choice of a set of laws for the government of the New Netherlands, after balancing the two books in his hands, chose the heavier volume.

TABLE II--CONTINUED.--SPEECH-TEACHING IN AMERICAN SCHOOLS FOR THE DEAF, MARCH 1, 1913

SCHOOLS FOR THE DEAF		NUMBER OF PUPILS		TAUGHT SPEECH		SPEECH USED AS A MEANS OF INSTRUCTION						Unclassified				
IN	THE UNITED STATES	Total	Taught Speech	Speech Not Taught	Speech Used as a means of instruction	Speech Not used as a means of instruction	Not stated whether used or not	S in Schoolroom outside	S in Schoolroom outside	S in Schoolroom outside	SS in Schoolroom outside		SSS in Schoolroom outside			
Arranged alphabetically according to location		Query 9	Query 8	Query 7	Query 6	Query 5	Query 4	Query 3	Query 2	Query 1	Query 6	Query 5	Query 4	Query 3	Query 2	Query 1
N. Y.	N. Y., Fort Washington Ave. & West 163d St. School...	491	491	152	339	15	—	—	—	—	—	—	—	—	—	—
"	" 534 West 187th St. School...	15	15	—	15	—	—	—	—	—	—	—	—	—	—	—
"	Rochester School...	167	167	—	167	—	—	—	—	—	—	—	167	—	—	—
"	Rome School...	93	84	9	84	—	—	—	84	—	—	—	—	—	—	—
"	Westchester School...	280	280	—	280	—	—	—	—	—	—	280	—	—	—	—
N. C.	Morganton School...	243	192	51	192	—	—	—	—	73	—	—	—	—	—	—
"	Raleigh School...	106	49	57	49	—	—	—	21	62	—	—	—	—	—	—
N. D.	Devils Lake School...	89	62	27	62	—	—	—	—	6	—	—	—	—	—	—
Ohio	Ashtabula School...	6	6	—	6	—	—	—	—	2	—	—	—	—	10	—
"	Cincinnati, Gilbert & Yale Aves. Sch.	2	2	—	2	—	—	—	—	—	—	—	—	—	—	—
"	" 321 E. 6th St. School...	10	10	—	10	—	—	—	—	—	—	—	—	—	—	—
"	" Main & Woodward Sts. School (17)...	38	38	—	38	—	—	—	—	38	—	—	1	—	—	—
"	Cleveland School (10)...	96	96	—	96	—	—	—	—	95	—	—	—	—	2	—
"	Columbus School...	480	292	188	284	8	—	—	—	282	—	—	—	—	—	—
"	Conneaut School...	6	6	—	6	—	—	—	—	6	—	—	—	—	—	—
"	Dayton School...	10	10	—	10	—	—	—	—	10	—	—	—	—	—	—
"	Toledo School...	11	11	—	11	—	—	—	—	11	—	—	—	—	—	—
"	Sulphur School...	203	81	122	81	—	—	—	—	81	—	—	—	—	—	—
Okla.	Taft School...	18	18	—	—	—	—	—	—	—	—	—	—	—	—	—
Ore.	Portland School (11)...	21	19	2	19	—	—	—	—	19	—	—	—	—	—	—
Penn.	Salem School (17)...	86	52	34	52	—	—	—	—	—	—	—	—	—	—	—
"	Edgewood Park School...	248	238	20	238	—	—	—	—	228	—	—	—	—	—	—
"	Phila., Belmont & Monument Aves. School...	65	65	—	65	—	—	—	—	65	—	—	—	—	—	—
"	" Mt. Airy School...	532	532	—	532	—	—	—	—	532	—	—	—	—	—	—
"	Pittsburgh School...	64	64	—	64	—	—	—	—	64	—	—	—	—	—	—
"	Scranton School (12)...	100	100	—	100	—	—	—	—	100	—	—	—	—	—	—
R. I.	Swarthmore School...	5	5	—	5	—	—	—	—	5	—	—	—	—	—	—
S. C.	Providence School...	89	89	—	89	—	—	—	—	89	—	—	—	—	—	—
S. D.	Cedar Springs School...	138	60	78	60	—	—	—	—	60	—	—	—	—	—	—
"	Sioux Falls School...	86	53	33	53	—	—	—	—	53	—	—	—	—	—	—
"	Lead School...	2	2	—	2	—	—	—	—	2	—	—	—	—	—	—
Tenn.	Knoxville School...	269	102	167	102	—	—	—	—	93	—	—	—	—	—	—
Tex.	Austin School (for colored)...	40	20	20	20	—	—	—	—	—	—	9	—	—	20	—
"	Austin School (for whites)...	391	249	142	249	—	—	—	—	173	—	—	—	—	76	—
Utah	Ogden School (13)...	112	102	9	102	—	—	—	—	84	—	—	—	—	—	—

[illegible]

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The objects of the Association as defined in its certificate of incorporation are:

"TO AID SCHOOLS FOR THE DEAF IN THEIR EFFORTS TO TEACH  
SPEECH AND SPEECH-READING—

"By providing schools for the training of articulation teachers;

"By the employment of an agent or agents who shall, by the collection and publication of statistics and papers relating to the subject and by conference with teachers and others, disseminate information concerning methods of teaching speech and speech-reading; and

"By using all such other means as may be deemed expedient, to the end that no deaf child in America shall be allowed to grow up 'deaf and dumb,' or 'mute,' without earnest and persistent efforts having been made to teach him to speak and read the lips."

In pursuance of these objects the Association encourages the holding of a summer school for the training of articulation teachers, and contributes toward the maintenance of a normal class of instruction at the Clarke School for the Deaf, at Northampton, Mass.

Conventions of articulation teachers and summer meetings of the Association are held from time to time in various parts of the United States, with the object of improving the methods of teaching speech to the deaf by means of lectures and discussions by specialists.

In addition to its special work in promoting the teaching of speech to the deaf, the Association, through a Superintendent, now carries on the work of the Volta Bureau in Washington, D. C., an institution dealing more generally with the education of the deaf and the amelioration of their condition.

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Its collections include the principal works upon the Education of the Deaf, or "deaf-and-dumb"; the published Reports of Schools for the Deaf in America and other countries; files of the newspapers and periodicals published by and for the Deaf, with most, if not all, of the extinct newspapers of the Deaf, and much unpublished material, available for research work, including the following:

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The Volta Bureau forms a medium of exchange between the Schools for the Deaf of the world. It distributes the reports of American Schools for the Deaf to foreign schools, and the reports of foreign schools to American schools.

It supports a Teachers' Information Agency, and keeps on file a list of teachers seeking appointments and a list of Superintendents, Principals and Parents desiring teachers for deaf children.





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